COMPUTERWORLD

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MCA bus shifts into higher gear

Comdex-goers see first demos of Micro Channel's bus-master capabilities

BY WILLIAM BRANDEL
CW STAFF

LAS VEGAS — After 19 months of selling PS/2 products that demanded a virtual act of faith from its customers, IBM finally demonstrated last week what the Micro Channel Architecture is all about.

At Comdex/Fall '88, board makers displayed products that exploit the so-called bus-master capabilities of the Micro Channel. Bus-mastering allows processors other than the CPU to take control of the bus. This technology may take in a new era of intelligent subsystems, such as high-speed hard disk drives, separate communication device processors and processors that sort databases and ma-

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nipulate graphical images.

Bill Kirwin, program director of personal computing for the Gartner Group, Inc., a market research firm based in Stamford, Conn., said bus-mastering products will hit the market in 1989

but will not "make sense" to most MIS sites until 1990. Saying he was encouraged to see bus-mastering demonstrated as a plausible application, Kirwin noted that "all the demonstrations were 16-bit implementations, while the bus-mastering in a 32-bit phenomenon."

Although not "overly thrilled" with the performance of his MCA-based PS/2s, Gerald Wyman, MIS director at Hoechst Celanese Corp. in Charlotte, N.C., said did not expect any benefits until the technology emerged. "We bought them looking to the future for what they'll do for us," Wyman said.

"This means that if we guessed right, our investment will pay off," said Paul Peloquin,

Sliced cable trips East Coast sites

BY ELISABETH HORWITT
CW STAFF

SOUTH AMBOY, N.J. — Business communications around the country bogged down and, in many cases, came to a standstill Friday when a construction crew inadvertently sliced through the fiber-optic cable that acts as the main pipeline for AT&T's long-distance customers between the Northeast and Southeast states.

The cable break happened at 12:15 p.m. and was not repaired during the rest of the business day.

Most seriously affected were companies with leased-line connections that run over the fiber-optic cable, according to AT&T spokesman Ralph Dohrbner. "There is heavy blocking of calls, particularly down the Northeast corridor to the South, with callers likely to hear a recording telling them calls could not be completed," he said during the crisis period. "But we are carrying switched traffic over alternative facilities."

Subdued reception for 16M-bit Token-Ring

BY PATRICIA KEEFE
CW STAFF

LAS VEGAS — IBM finally unveiled its 16M bit/sec. Token-Ring network last week at Comdex/Fall '88, but the technology may be too much for office use and too late for larger installations.

Many analysts contend the product is unlikely to play a serious role in IBM's long-term connectivity scheme, which they say will probably revolve around the 100M bit/sec. Fiber Distributed Data Interface network that IBM has said it plans to release in the second half of 1989.

"We are certainly using and committed to using the Token-Ring, but we don't need 16M," said Harry Zupnick, vice-president of technology planning at Merrill Lynch & Co., which last week began automating offices on a Token-Ring scheme. "I think 16M would be ideal for

massive amounts of CPU-to-CPU communication, but you certainly don't need it in a transaction processing-oriented ring with human operators. People

just don't type that fast.

"Bottom line, we don't expect the 16M bit/sec. to be a real money-maker for IBM," said Steve Wendler, a program director with the Gartner Group, Inc., a market research firm in Stamford, Conn. "However, it will provide users with short-term relief and growth options.

Cashing in on virus anxieties

BY CLINTON WILDER
CW STAFF

One man's worry is another man's selling opportunity. And when the worry is the susceptibility of corporate data to a computer virus attack, the promise of a vaccine can be quite appealing.

So it comes as no surprise that a flood of new products, services and self-help books have hit the market since suspected hacker Robert T. Morris Jr. allegedly brought the Internet network to a standstill earlier this month. One publisher, referring to the author of its new book on viruses, promised, "With Roberts in hand, safe computing, like safe sex, is attainable."

But MIS executives and consultants are warning their colleagues to keep a clear head and beware of skepticism before their virus vaccine shots. "Frankly, I'm nervous about vaccines. I don't trust them," said William Burrows, director of the information systems division at C. M. Alli-

ance, a Hartford, Conn.-based insurance carrier.

Burrows said C. M. Alliance will strongly resist any quick fixes. "We're not the type of company that reacts instantaneously," he said. "We can't just drop everything and go with a new product. Our view is that internal policies and procedures are the best way to address this."

Many corporations agree. Omicron, a Morris Plains, N.J.-based MIS consultancy, held a Nov. 8 meeting with 16 clients to discuss virus defenses. The meeting included firms such as Exxon Corp., Pfizer, Inc., Pratt, Marwick, Main & Co. and Metropolitan Life Insurance Co.

"There was a definite buyer-beware feeling" about commercial antivirus products, Omicron President James Webber said. "The participants fully expected that a flurry of panaceas would be announced."

IN THIS ISSUE

Cray communication. In a rare press conference, the supercomputer maker outlines plans for concerted software development and the first gallium-arsenide-based machine. Page 4.

Double your pleasure. Latest high-end Honeywell Bull mainframe claims twice the transaction processing rate of IBM's 3090. Page 7.

Bright lights, big city, big show. Pages 8, 100 and 101.

Liquidation sale

Workers await Zayre buyout's impact on MIS

BY ALAN J. RYAN
CW STAFF

FRAMINGHAM, Mass. — "Acquisition" is becoming a term most commonly followed by "consolidation," and MIS employees at Zayre Corp. are waiting to see how they will be affected by both, as Ames Department Stores, Inc. begins its merger with the Zayre Stores operation.

Zayre officials declined to comment last week on whether members of the MIS staff would be among the 1,400 to 1,700 people expected to lose their jobs when Ames moves the entire Zayre Stores operation to its Rocky Hill, Conn., headquarters.

Catherine Leonard, director of investor and public relations at Ames, said that the home office staffs of both operations, including MIS, will be consolidated over the next 12 months. "And it will take longer than that to integrate whatever systems are used at the store level throughout the two chains — and there are many," she said.

It is too soon to tell how many MIS jobs would be lost in the consolidation, according to Leonard.

The 392 Zayre stores were purchased by Ames last month, but sources within Zayre said their jobs are secure until at least May 1989.

One source in the Zayre information center said that the MIS group is currently made up of 40 to 50 people who handle data processing operations for the Zayre Corp. subsidiaries, including Hit or Miss, Inc., T. J. Maxx and BJ's Wholesale Clubs, Inc. The source said that the department's personnel work on computer systems for all Zayre Corp. operations, so there were no MIS workers assigned exclusively to Zayre Stores operations.

Connection calls

By Nov. 1, 1989, Leonard said, all MIS operations will be located in Rocky Hill. She said Ames expects that many of the MIS executives will relocate to Connecticut, but she was not certain whether Ames or Zayre executives would head up the department.

Regarding store operations that involve computing, such as distribution of goods to the stores, Leonard said the 364 Ames stores and the Zayre stores are reasonably compatible.

"Ames and Zayre are similar in that 90% of the merchandise in one store is the same as it is in another store. Buying is done centrally, and store operations are managed centrally," Leonard said.

AT&T airs prototype PBX link

BY ELISABETH HORWITT
CW STAFF

ST. LOUIS — AT&T last week confirmed industry speculation and reassured its largest private branch exchange (PBX) customers by showing them a prototype that is said to integrate AT&T's System 75 and 85.

Demonstrated at last week's meeting of the System 75/Electronic Tandem Network User Group, the prototype is solid proof of AT&T's intentions to protect 90% of customers' investment in hardware and software for both PBXs, AT&T spokeswoman Ruthlynn Newell said.

The commercial version, which will be announced sometime in the next 15 months, will link the two types of systems via a "universal piece of hardware that is a central control point," Newell said. The product will also provide a migration path

through common circuit packs that can be used to add digital lines in eight-line increments to either PBX, she added.

The announcement "could be positive for us" if it means that AT&T will not "pull a typical computer manufacturer's move by saying, 'We won't support [the System 75 or 85] anymore,'" said Stan Welland, director of corporate telecommunications at General Electric Corp. Welland sites saw value in being able to upgrade System 75s installed at GE remote sites.

The system could integrate the greater firepower of the System 85 with System 75's superior data-handling features, said Jeff Kaplan, an analyst at The Ledgeway Group, Inc. in Lexington, Mass. The System 75 is less prone to the blocking problems that plague PBX-based data networks and can link more cleanly to LANs, he added.

But AT&T could be missing the boat if its low-end System 25 is not also integrated, noted Tom Nolle, president of Haddonfield, N.J.-based company CIMI Corp. "AT&T is in a very bad position," because, unlike its major rivals, it takes three incompatible PBX lines to supply the full range of customers' needs, he said.

Cray lays out product plans for next decade

BY JAMES DALY
CW STAFF

KISSIMMEE, Fla. — In a rare public appearance, Seymour Cray — whom many regard as the George Washington of the supercomputer industry — laid out a road map for Cray Research, Inc.'s upcoming product direction last week. Cray promised the delivery of the first gallium arsenide-based supercomputer by next year.

Additionally, in the Minneapolis-based firm's first press conference in several years, Chairman John A. Rollwagen said Cray will begin producing its own application software field in the near future in order to provide the fuel to run the supermost machines on.

"Software is as much setting the pace and performance of our systems as the hardware," Rollwagen said, adding that he expects 1989 to mark the first year in which the company spends more research and development dollars on software than on hardware.

Cray, who founded Cray Research in 1972 but now works as an outside consultant and the firm's primary computer designer, told more than 1,000 people attending the keynote address of the four-day Supercomputing '88 technical conference that the long-delayed Cray-3 will be worth the wait.

"We're on the front end of something very important," said the lanky Minnesotan, comparing the current stage of gallium arsenide development with that of silicon in the early 1960s. "We think we have a long way to go, but we're going as fast as we can."

The upcoming machine will have 16 processors and offer 8,000 million instructions per second (MIPS), 3,800 million floating-point operations per second (MFLOPS) and 12 times the computing power of the Cray-2, 63-year-old Cray said.

Gallium arsenide is the chief springboard for the improvements, Cray said, due to its ability to afford more electron mobility than silicon.

Ten years coming

Cray said he has considered implementing gallium arsenide technology into supercomputers for nearly 10 years and had planned on using gallium arsenide circuits in the Cray-2. However, he said, the technology was too premature when that machine was introduced in 1986.

The Cray-4, which is expected in 1992, will also use gallium arsenide circuitry, Cray said.

That machine is expected to offer 64 processors, 128,000 MFLOPS of memory, a 64,000-MIPS processing speed and a clock speed of 1 nanosecond.

Although Cray admitted that gallium arsenide is difficult to work with — the liquid is nonuniform from batch to batch, and the supply is still inadequate — he and the company are firmly committed to its use.

Cray blamed the six-month delay in the delivery of the Cray-3 on a move of production facilities from Minnesota to Colorado Springs. Cray also said the schedule was tripped up by a lack of robotic facilities; because the machine's components are so tiny, robots will be used for automatic assembly.

Cray with one of his machines

Pushing the envelope

ITHACA, N.Y. — IBM and Cornell University plan to stretch the boundaries of supercomputing with their announced intent to experimentally link two IBM 3090 Model 600E supercomputers into a single complex containing 12 processors working in parallel.

Cornell's new 3090 600E has undergone a series of acceptance tests since it became operational Sept. 30. The machines are currently being run separately, but when united, the two computers would be capable of a combined peak speed of 1.56 billion floating-point operations per second.

The pair will be used for a wide variety of applications, including analyzing scientific data on the surfaces of Jupiter and Saturn, predicting the performance of replacement hip joints and modeling the rhythm of the human heart.

The single 3090 600E now supports the work of 1,700 researchers from 116 institutions throughout the country.

JAMES DALY

Skepticism greets MAI Prime bid

BY NELL MARGOLIS
CW STAFF

It was the canary that tried to swallow the cat.

Tustin, Calif.-based MAI Basic Four, Inc., a purveyor of specialized turnkey manufacturing packages to small businesses, last week offered $20 per share for the approximately 48.5 million outstanding shares of Natick, Mass.-based Prime Computer, Inc. — a company more than three times its size.

Dennis Love, data processing manager at Acme Thread & Supply, Inc. in Los Angeles, is one Prime user who said he hopes Wall Street's skeptical reaction to the bid is on the mark. "When I got into Prime several years ago, MAI Basic Four was one of the contenders," he said. "Understandably, they told me about all these plans for new hardware, but none of them have since come about. Not one.

"I really have my doubts as to whether this takeover is going to happen," Love added. "There's nothing in it for Prime."

Many, including Love and industry analysts, speculated that the bid was an attempt by MAI Chairman Bennett LeBow to prompt Prime to counteroffer with a bid for MAI. Recent attempts by New York investor LeBow and business partner William Weksel — together they own 43% of MAI — to sell their shares lent credence to the suspicion of so-called "greenmail."
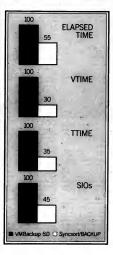
MAI, itself salvaged from a devastating hostile takeover four years ago, plans to buy with a little help from its friends: The would-be acquisitor has lined up some $850 million in bridge financing and a junk bond commitment of as much as $875 million.

Red-flag aspects of the offer — the presence of flamboyant financier LeBow as the controlling force behind MAI; the staggering proportion of debt needed to fund the deal; and the fact that analysts find little technological synergy in the proposed match, for instance — led market observers to question it as a good-faith takeover bid.

Prime, however, took it seriously. Less than 48 hours after MAI chairman LeBow's "Greeting" letter arrived, the company installed Anthony L. Craig as president and chief executive officer. The move abruptly curtailed the transition period during which Craig, a former General Electric Co. executive, was to ease into his new duties while serving as Prime's chief operating officer under outgoing CEO Joe M. Henson.

Users, at this early stage of what promises to be a bitter battle, were both dubious and indifferent. "Given some of the other things that have happened in the stock market recently," said Charles Sheffler, MIS director at Tempe, Ariz.-based General Semiconductor Industries, Inc.

At Westminster College in Salt Lake City, academic computer programmer Kelly Young said he doubts Prime would abandon its users but added, "They'll probably come up with all sorts of new strategies and ideas to drive us all crazy." Prime's own hostile acquisition of Computervision Corp. last year went virtually unnoticed at Westminster, said Young; he is optimistic that the smooth transition that inhered when Prime was in the catbird seat will be repeated if Prime finds itself in the canary's beak.

Poor relation

Equity-to-debt positions, as of last spring, show Prime is relatively weak financial standing compared with its competitors

	Equity	Debt	
IBM	$6.41B	$6.7B	$37.61B
DEC	$2.07B	$280M	$7B
Unisys	$55M	$2.78B	$4.72B
Hewlett-Packard	$1.43B	$296M	$4.86B
NCR	$602M	$222M	$2.05B
Wang	$167M	$736M	$1.56B
Prime	$99M	$668M	$523M

SOURCE: STANDARD & POOR'S CREDIT PROFILE
CW CHART

NEWS SHORTS

EDS wins gas firm contract

One of the largest natural gas transmission companies, Enron Corp., last week announced plans to contract operation of its MIS function to Electronic Data Systems Corp. The Houston-based $4.4-billion gas pipeline operator said it will save money by signing a 10-year contract with EDS. Under the agreement, EDS will offer the 550 Enron MIS employees jobs at the same salary and benefit levels and in the same cities where they now work. Enron will retain a small staff of technical specialists as liasons with EDS.

NEC adopts System V

NEC Corp. has decided that AT&T's Unix System V is its cup of tea. Reports surfaced last week that the second largest computer maker in Japan, following on the heels of Fujitsu Ltd., the largest, will endorse Unix System V. Another major Japanese firm, Hitachi Ltd, is a member of the competing Open Software Foundation. Toshiba Corp. is a member of both groups. Japanese analysts said NEC's move tipped the balance in favor of AT&T and that other Japanese hardware and software vendors are likely to line up behind System V.

HP profits soar

Trading on the recent success of its long-awaited Spectrum computers, Hewlett-Packard Co.'s profits soared 27% for the fiscal year, according to its year-end financial report last week. HP said total revenue was $9.8 billion, up $1.7 billion from last year. An improvement in HP's proprietary operating system, MPE/XL Version 1.1, which began shipping this summer, had a "dramatic effect on accepting the next generation of computers and replacing the old generation," said Adam Cuhney, an analyst at Kidder Peabody, Inc.

First California ISDN sale

Pacific Bell said Friday it has signed a $2.9 million agreement with the city of Fresno, Calif., to provide an Integrated Services Digital Network — the first commercial sale of ISDN in the state. The Centrex-based system will will consist of 1,440 lines and is scheduled to become operational in fall 1989. Among other things, the network will allow citywide transfer of data, immediate starts or stops of phone service to residors in the municipal convention center.

DG joins testing group

Data General Corp. in Westboro, Mass., last week joined the Transaction Processing Performance Council, a Los Altos, Calif., group that is attempting to establish a standard benchmark for testing processors and software. Its membership now stands at 25, including IBM, Digital Equipment Corp., HP, Tandem Computers, Inc. and Unisys Corp. among hardware vendors and such software companies as Oracle Corp., Relational Technology, Inc. and Cullinet Software, Inc.

Unisys ups prices

Unisys announced U.S. price increases ranging from 5% to 10% last week on selected hardware, software, maintenance and support, effective Jan. 1. High-end hardware products will increase 5% to 8%, while software, maintenance and other services will increase selectively from 5% to 10%, officials said.

Ashton-Tate consolidates

Ashton-Tate Corp. announced plans Friday to close its Connecticut word processing and graphics offices and consolidate them in its Northern California Product Center, located in Los Gatos. Although customer service and technical support will remain operational through April 1989, the prospective closings mark the disappearance of the Ashton-Tate acquisitions Multimate — formerly located in East Hartford, Conn. — and Decision Resources — formerly located in Shelton, Conn. Ashton-Tate officials said the move will permit centralization of technology and services under Bill Lyons, vice president of the PC applications division, in Los Gatos.

OSF nabs key CA executive

Acquisition front man Tory to become software consortium chief

BY AMY CORTESE
CW STAFF

The Open Software Foundation (OSF) last week tapped A. David Tory, executive vice-president of software conglomerate Computer Associates International, Inc., as its new president and chief executive officer.

Tory was an 11-year veteran of CA and a key player in its management team led by Charles and Anthony Wang.

"David is one of the most brilliant strategists in the software industry, and that is what OSF needs," said Robert Therrien, an analyst at Paine Webber, Inc. in New York.

In an interview last week, Tory said he joined the OSF because of the tremendous challenges and opportunities it presents. "Unix will be the single most important issue in computing, and OSF will drive the standard," he said.

Sweet sorrow

By all accounts, the parting was on good terms. "Charles [Wang] and I had a long discussion, and he thinks OSF's objectives are important," Tory said. CA is not a member of the OSF or its counterpart, the AT&T-sponsored Archer group. In fact, only a month ago, at a meeting of the Massachusetts Software Council, Charles Wang said he was cynical about the intentions of both the OSF and the Archer group, calling them "a crock."

According to CA, Tory is officially on a leave of absence from

the company, but Tory explained that the terminology is a generous "safety net."

Tory said he was contacted by the OSF several weeks ago, and discussions have been ongoing since then. He insisted he was not looking to leave CA, adding that "I took them a long time to convince me."

The appointment is a critical one for the OSF. Recently, the organization has seemed to be undergoing something of an identity crisis, as AT&T has moved to bolster its own position and that of Unix System V. Tory will replace interim President Henry Crouse, who will be returning to his post of vice-president of strategic relations at Digital Equipment Corp.

A Unix man?

Tory's hiring came as a surprise to many, most notably because his experience with Unix is limited. CA does market some Unix-based graphical products but is not much of a presence in the Unix market. "OSF was looking for a CEO who had come out of a software environment that was market-driven and understood the commercial world, since that is the direction Unix must go in," Tory said.

An OSF spokesman said that Tory's experience in acquiring and commercializing technology is a skill that will be valuable to the OSF, which is essentially doing the same thing.

Tory claims he is not a newcomer to Unix and has been an avid observer of and participant

in the Unix debate since the formation of the OSF. He said he has been concerned that the opportunity in front of the OSF would be disguised by the negative attitude of AT&T.

"AT&T's attitude is, 'It belongs to me — lay off,' " Tory charged. While AT&T is "looking backwards to the way Unix has been used in the past . . . OSF is looking ahead and saying, 'Let's make Unix commercially viable.' " The Archer group wants to protect its marketplace, which "to a large extent means Unix will be frozen in place," he added.

On the British side

Tory comes to the OSF after 11 years with CA and a relationship that goes back even further. In 1971, Tory founded Carus AG, a UK-based company that distributed CA software there. That company was the fledgling CA's first acquisition in 1979, and Tory joined CA as managing director for the UK.

In his most recent position at CA, Tory was the "front-end" man for CA's many acquisitions, identifying and reviewing the opportunities that have propelled it to today's nearly $1 billion mark.

"He was a key person at CA on the acquisition side. It is a negative for them to lose him," said Tim McCollam, first vice-president at Dean Witter Reynolds, Inc. in New York. Tory will reportedly be replaced by Sanjay Kumar, who was formerly with CA's Uccel Corp. division in Dallas.

Cashing in

In many cases, vendors of products such as electronic mail systems, data encryption packages or integrated personal computer software are simply highlighting the antiviral features of their wares in the wake of the Internet incident. Vendors have changed their marketing emphasis or timetables in examples such as the following:

• 3X USA pitched its private E-mail software, Mail-Server 3.0, as a "low-cost alternative to potential virus-carrying public E-mail systems." In a press release, the Fort Lee, N.J., firm said, "Public E-mail networks are inherently insecure methods of transmitting files."

• Codercard, Inc. announced that its CSM-100 computer security system, "while initially developed for electronic funds transfer and electronic data interchange security, can also be used to secure any system from unauthorized attack by a virus."

• Giles Communications, a Black Mountain, N.C., software distributor, noted that Worldwide Data Corp.'s antivirus PC products Vaccine, Antidote and Disk Watcher are available from Giles. The distributor's announcement began, "Vaccines are now available which will kill a computer virus."

• Deloitte Haskins & Sells said that its computer security consultants believe the Arpanet virus should be a "clear warning" to U.S. businesses. "Management should use a security professional just as they would use a medical professional when a serious illness threatens," Everett Johnson, a partner in the Big Eight firm, said in a statement.

Codercard President Willis Marning said the Santa Ana, Calif., firm did move up the announcement of its CSM-100 security system to last week. "We wanted to get on record to take advantage of the publicity on the situation that was going on," he said.

The timing of last week's introduction of Sunflex Corp.'s

Multipack SM, personal productivity PC software that includes a virus-detector module, was not planned with Internet in mind. But it netted the Atlanta firm air-time on Cable News Network and several local radio stations.

Taking advantage

"It turned out to be fortuitous," said Pat Lee, Sunflex's director of sales and marketing.

"If we were selling a vaccine only, that would be taking unfair advantage of the situation. But I'd be remiss if I didn't tell you we've had more interest because of it."

Lee admitted the possibility of a backlash against security products being introduced right now, but he said it comes from those unfamiliar with software product development.

In addition to generating marketing interest in security products, the Internet situation may be attracting investors as well. Merrill Lynch & Co. announced that it will buy a minority stake in Micronyx, Inc., a Richardson, Texas-based data security firm.

COMPUTERWORLD

Honeywell announces fastest mainframe yet

BY ROSEMARY HAMILTON
CW STAFF

BOSTON — Honeywell Bull, Inc. last week made its grandest move yet to preserve its customer base with the rollout of a high-end mainframe that it claims offers more that twice the transaction processing performance of IBM's 3090.

Users and analysts said they were impressed with the capabilities of the DPS 9000, but they also indicated that it will be tough for Honeywell to stop customers from defecting to IBM.

"This announcement is important more as a defensive measure," said Donald Bellomy, a senior analyst at International Data Corp. in Framingham, Mass. "They are definitely feeling at risk, so they have to keep people from leaving."

One DPS 90 customer said he was impressed with the new mainframe but had already made his decision to move to the IBM 3090. "If they had had a DPS 9000 two years ago, maybe we would have thought a lot harder," said Ken Bottonari, Contel Corp.'s vice-president of IS.

The DPS 9000, based on Honeywell's performance numbers, is the fastest transaction processing mainframe on the market. The company tested the system against IBM 3090s using the TPI benchmark and reported that the high-end model can operate at 1,000 transaction/sec. The next best score went to a 3090 Model

el 600S, which Honeywell said has an estimated 421 transaction/sec. rate.

The actual test was done on a 3090 Model 150E, according to John Undiano, director of hardware product marketing. The 3090 600S rate is a projection based on the 150E results.

Pricing plans

Honeywell plans to sell the system in four different configurations, which range in price from $5.9 million for the unprocessor model to $22.9 million for the quadprocessor implementation. Shipments are expected to start in May 1989.

The systems also feature two cache fa-

cilities. The first cache resides in the CPU, and the second one resides with the System Control Unit (SCU). The additional cache is said to boost throughput, because the SCU can monitor the CPU's activities and determine what instruction sets it may need after the current instructions are completed. It can then fetch those instructions from memory, store them in its own cache and get them to the CPU more quickly when it requests them.

However, Honeywell continues to lack the breadth of application offerings it needs to hold onto customers, said John Dunkle, vice-president of the Aberdeen Group, a market research firm in Boston.

"Even at this end of the market, a vendor needs to provide applications," Dunkle said. "If applications are available on IBM, and Honeywell provides robust communications [to the IBM environment], then it may be worth moving over to IBM."

Honeywell's Undiano challenged that remark, noting that Honeywell offers transaction processing software, a relational database management system, fourth-generation language development tools and data query and access tools.

But IDC's Bellomy said Honeywell must provide more software for its platform. "Typically, many of their accounts have IBM systems as well," he said. "They have to get people to do more work on the Honeywell systems."

Brain enrolls in business school

BY ALAN J. RYAN
CW STAFF

HOUSTON — An obnoxious brain recently found its way onto the University of Houston campus. The Pakistani microcomputer virus, which displays the word "Brain" on the disks it infects, was found in the University's College of Business.

"We suspect the virus was contracted through some of the illegal copying that goes on by students, and they managed to infect one of our diskettes, which in turn infected all 300 diskettes in our software library," Houston's Shafique Pappa said.

But while annoying, the virus, discovered by a student, did no real harm. "We don't keep any data on our diskettes, so it was contained to our library. It did not infect any of our staff people," he added.

Pappa said the college does not believe the virus was planted maliciously, but has taken precautions to prevent the incident from happening again.

"We took all of our diskettes out of circulation, a package at a time," Pappa said. "And we have a new policy that anytime a diskette comes back and is not write-protected, we take it out of circulation, we check it for the virus and we charge the student who took out the virus for protection tab 50¢ per diskette."

The Brain virus is not new. In May, it popped up at the Providence Journal Co. in Providence, R.I., and Bowie State College in Bowie, Md. (CW, May 30). According to Peter Scheidler at The Providence Journal, three phone numbers listed in the header field of the virus helped indicate the virus' author in Lahore, Pakistan.

COMDEX NOTEBOOK
Just about everything but the kitchen sink

If you blinked, you missed it. Last week's IBM press conference appeared to be a somewhat hasty — not to mention low-key — affair. It was tough finding the briefing, which was tucked away in a closet next to a kitchen in the Las Vegas Convention Center. Those who stumbled onto the room were squeezed into a standing-room-only crowd of about 60. "It was a mess," one editor said. Added another, "I thought they were going to vent the Fryolator into the conference room." The whole "event" was wrapped up in a tidy 30 minutes. They don't call 'em briefings for nothing.

Got religion. To one editor who had not attended a Comdex since 1985, the contrast between the blue-suit set at this year's affair and the Hawaiian-shirt motif of earlier years was striking. No transformation was more notable than that of Borland, whose chairman, Philippe Kahn, clearly aiming to shed his outrageous image, appeared in a natty gray suit and suspenders and lectured seriously and intelligently on the industry's responsibility to its users. Meanwhile, other Borland officials spoke of the importance of MIS, corporate integration and database connectivity — and all of this from the company that once held a Comdex toga party.

Bad vibes. Fans of unshielded twisted-pair wire can kiss 16M bit/sec. speed goodbye, at least for now. The bad news is that while 16M bit/sec. token-ring can work with ordinary telephone wire, IBM doesn't recommend that users "risk" it. IBM exec Frank Elliott cited attenuation and noise problems, adding that the unshielded cable is "not capable of handling speed of this nature." Suggested instead is either the IBM Cabling System or Type 1, 2 or 9 cable. Worse, the IEEE's 802.5 committee has "specifically excluded" unshielded twisted-pair, according to committee member and Proteon cofounder Alan Marshall.

Computer Dealer Exposition? At least one informal poll showed that Comdex is fast becoming the show for end users. Users made up more than half of a packed session on IBM futures, judging by a show of hands. In contrast, only a relative handful of dealers were in attendance. Contrast that with the pitiful session attendance at last month's supposedly user-oriented Info show in New York. There, one session leader was told that his audience of 23 was one of the biggest of the show.

Crowds throng Comdex/Fall '88 in Las Vegas

Tomorrow, the world. As if to underscore Comdex's stranglehold on Las Vegas during convention week, Interface Group boss Sheldon Adelson said the company plans to build a million-square-foot convention center near the Sands hotel for use by Comdex/Fall '89. The work will begin early next year, assuming Adelson's purchase of the Sands goes through.

Just don't pay! Not ready to ship 3Com Corp. from announcing compatibility between its 3+Open LAN Manager and LAN View network management software and IBM's OS/2 LAN Server and OS/2 Extended Edition 1.1. Also supported are other LAN Manager-based systems.

Compiled by CW staff members Patricia Keefe, Paul Gillin and J.A. Savage.

Falling in behind IBM

Only one third party was quick to react to IBM's Comdex/Fall '88 unveiling of 16M bit/sec. Token-Ring, but the rest of the pack will not be far behind.

Several token-ring suppliers indicated they will try their hand when Texas Instruments, Inc. introduces a 16M bit/sec. chip set in early December. But despite plans to build a 16M bit/sec. product, they appear uncertain as to its use and acceptance.

Walking right up IBM's heels, Proteon, Inc. announced three products: an IBM Micro Channel-based 16M bit/sec. adapter that features a bus master; an intelligent wire center, or concentrator; and a compatible version of its Token-Ring network management software.

Delivery is tentatively slated for the second quarter of 1989, dependent on commercial availability of the TI chip set.

TI has said it will sample a reduced chip set that will support both a 4M and 16M bit/sec. token-ring transmission speed. The forthcoming processor uses three chips instead of the five in the current model.

A Western Digital Corp. spokeswoman said that vendor is also working on a 16M bit/sec. token-ring chip set.

Among the vendors planning to offer alternatives to IBM's 16M bit/sec. Token-Ring are the following:

- 3Com Corp. said it will be able to deliver adapter and bridge products "in calendar '89."
- Andy Verhalen, director of marketing for 3Com's Distributed Systems Division, suggested that in the long term, 3Com may not offer both 4M and 16M bit/sec. speeds.
- NCR Corp.'s Martin Sincott, who directs the Dayton Development Center for the PC Division, would only say that NCR is working closely with TI and that it will announce a product in conjunction with TI announcement.

Most said they have received inquiries about a 16M bit/sec. card, but nothing dramatic.

PATRICIA KEEFE

Token-Ring
FROM PAGE 1

A local-area network manager at a large insurance company currently using the 4M bit/sec. Token-Ring said he will evaluate the faster product. However, asking not to be identified, he added, "Right now we don't know of any application that need that speed." At Merrill Lynch & Co., a study showed that with 96 workstations on a 4M bit/sec. Token-Ring, less than 10% of its bandwidth was used with peak market activity. "So [there is] lots and lots of spare room," Zupnick said.

Released with no fanfare, the 16M bit/sec. package boasts two major improvements over the current 4M bit/sec. Token-Ring: greater bandwidth and concurrent support for multiple data packets on the ring. Adapters for the 4M bit/sec. Token-Ring range from $728 to $939, and analysts had expected the 16M bit/sec. to be priced from $1,000 to $1,200.

Support for channel-to-channel connectivity between mainframes via the IBM 3475 controller will cut waiting time from hours to as little as 30 minutes for specialized applications, according to IBM.

IBM's latest 16M bit/sec. Token-Ring

have a centralized file server" for graphics as well as enabling engineers to cooperate on projects over the network, he said. But, he added, "I can't say we'll buy it tomorrow."

IBM limited immediate availability of 16M bit/sec. adapters only to the 3725 controller and the 3174 cluster controller. This means users of IBM's other controllers who want the higher bandwidth will have to choose between waiting or upgrading.

Also available now is support for the Series/1 and the 9370, which can act as a server, gateway or applications machine. The Application System/400 is targeted for "planned support." Missing the support boat entirely are the System/36 and 38 and the RT.

A rundown on the 16M bit/sec. Token-Ring package includes the following:

- An internally developed chip said to contain special support for Netview, more than will be found in the forthcoming 16M bit/sec. chip set from Texas Instruments, Inc., according to Wendler.
- Buffered 64K random-access memory supports larger data frames and more concurrent sessions. Larger data frames increase transmission efficiency by as much as 300% in some cases.
- Early Token Release, for the 16M bit/sec. only, increases network efficiency by allowing more than one workstation to use the bandwidth at a time.

Senior Editor Elizabeth Horwitt contributed to this report.

bandwidth will have to choose between waiting or upgrading.

said David Kaplan, Microsoft's SQL Server product manager.

Spread out over 6,000 square feet, the exhibit featured applications running over a plethora of different workstation and network hardware platforms supplied by at least 14 vendors — all connected by LAN Manager, said Rob Glaser, Microsoft's director of network marketing.

"The most dramatic of the primarily third-party applications are those that will make use of the [Ashton-Tate/Microsoft] SQL server," Glaser said.

OS/2 meter reads full

BY PATRICIA KEEFE
CW STAFF

LAS VEGAS — Never mind the legions of hardware vendors lined up behind IBM and Microsoft Corp.'s OS/2.

A more telling barometer of the momentum that is pushing Microsoft's next-generation operating system is the level of applications support. And the macro software giant is aware of that.

In an effort to provide users with an inkling of developer commitment to OS/2, Microsoft chose Comdex/Fall '89 to showcase a live demonstration of at least 22 software programs featuring a mix of ports to Microsoft's OS/2 LAN Manager and SQL Server and IBM-Microsoft Presentation Manager.

"It wasn't glitzy, but we had real stuff here doing real work,"

FCC airs ruling on ONA petitions

BY MITCH BETTS
CW STAFF

WASHINGTON, D.C. — The Federal Communications Commission last week took a big step toward implementing its Open Network Architecture (ONA) scheme by approving and reject-

ing various parts of the ONA plans submitted by the seven regional Bell holding companies.

In essence, the FCC voted for the first time on the actual details of ONA, which was designed to give enhanced-service providers and corporations access to unbundled elements of

the local telephone network. Examples of ONA services include data-over-voice service, protocol conversion, automatic number identification, diagnostic channels and reconfigurable private networks.

The FCC's message to corporate network managers was

"you're not going to get true un-bundling, but you will get cost-based rates," said Henry D. Levine, an attorney for the Committee of Corporate Telecommunications Users and several financial services companies.

A key decision made by the FCC is that interstate ONA services must be offered in federal, as well as in state, tariffs and that

the federal tariffs must use cost-based pricing, according to Gerald Brock, chief of the FCC's Common Carrier Bureau. That was a victory for several users groups that sought the kind of cost-based pricing offered by Ameritech, rather than market-based pricing.

However, the FCC did not force the Bell holding companies to further unbundle their ONA services by separating transport from switched services, as business groups had sought [CW, Feb. 1]. "We'll have ONA, but we're no longer talking about a truly open network," Levine said, because customers will be forced to pay for switching services from Bell companies that they do not need.

The FCC also did not require the seven regional Bell holding companies to provide ONA uniformity, which would ensure that technical standards and interfaces are the same nationwide.

The FCC encourages the Bell companies to work toward uniformity, Brock said, but "We are not requiring full uniformity . . . because that would set the process back."

Levine said he expects the FCC to continue to push for uniformity even though the agency stopped short of commanding it. "The commission decided to take a lighter handed approach rather than a heavy-handed approach," he said.

'Acceptable'

FCC officials said the Bell companies did a "generally acceptable job" of coming up with the ONA plans but that the plans must be amended to reflect last week's FCC decisions. The amended plans are due May 19, and final approval is expected by the end of 1989, Brock said, so deployment of ONA services is not likely until 1990.

The ONA orders approved last week included the following points:

• AT&T's ONA plan was approved with minor revisions. AT&T is using its Account Packet Service as the basic building block for its ONA services.

• The FCC will launch a new regulatory proceeding to make its access-charge and tariff rules conform to ONA.

• The FCC directed each Bell holding company to review the others' ONA plans and look for ways to augment its list of ONA services. The FCC said it does not understand why some Bell companies declined to offer certain services that others will offer.

• The FCC directed the Bell companies to provide three-year projected deployment schedules for their ONA services.

• The FCC designated the Information Industry Liaison Committee as the appropriate industry forum for resolving technical ONA issues.

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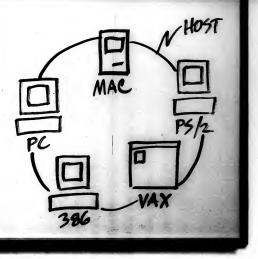
While this variety of solutions makes it easy for users to meet their needs, it presents some problems. Like sharing information between incompatible systems. The kinds of problems facing more and more companies as their information systems grow and diversify.

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CA to hunt IBM with single DBMS

CA-Universe, Datacom/DB form vanguard for 1990 arrival of solo system

BY ROBERT MORAN
CW STAFF

Computer Associates International, Inc. has made its intentions plain. In the spring of 1989, it is targeting delivery of two database management systems — the highly relational CA-Universe and its recently acquired CA-Datacom/DB — as an interim step before unleashing a single database called CA-Datacom-II.

With the planned single product, slated for availability in late 1990 and predicated on the architecture of CA-Datacom/DB, the company is drawing a bead on IBM's DB2.

Creating the new database, maintaining upward compatibility from the old databases and going after IBM are no easy tasks. Although analysts claimed that CA can accomplish the feat, they characterized both target dates as ambitious.

Complexity question

Carrying the technology across both platforms is very easy, said Colin White, an independent consultant and editor of *InfoDB*, a database journal. "The question is: How much code can they take across without having to recode?" White said. He questioned whether the complexity will allow CA to meet its second-quarter-1989 target date. White added that upgrading applications will be eased because the interfaces in CA-Datacom-II will be the same as in the earlier products.

George Schussel, president of Digital Consulting, Inc. in Andover, Mass., said that CA "will have a shot — if it can pull it off — at being the best technology and the biggest company of the independents, and consequently very competitive with IBM's DB2."

Of the other competition — Cincom Systems, Inc.'s Supra and Cullinet Software, Inc.'s IDMS — Schussel said that IDMS has faded significantly from the marketplace. However, while IBM continues to dominate, Cincom, according to White, will bring out its second version of Supra next year. The release, White said, will let Cincom beat CA to the market, which may not be prepared to wait another year.

The CA edge

CA claimed that its yet-to-be-delivered product offers a significant edge over its principal target. According to CA, investments in applications systems built on IBM's VSAM and IMS/DB are squandered because IBM has failed to provide transitional software to DB2. In contrast, CA claimed that its migration software will tackle the problem. "What we are doing is equivalent to putting together VSAM, IMS and DB2," said Dominque Laborde, assistant vice-president of CA's database products division.
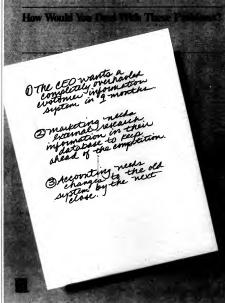
While CA locks horns with IBM and other DBMS competitors, users are waiting for product. Erich Sokol, manager of systems development at Northwest Natural Gas Co. in Portland, Ore., has dropped his plans to have Northwest become a beta site for Release 8.0 of Datacom/DB because of its lateness.

Instead, Sokol will use the native version of CA-Datacom/DB to build applications and later retrofit them to the SQL version. The absence of SQL will hurt the company in the future, he said, adding that the new products look viable but that "the proof is in the pudding —

and in timing."

CA-Universe user Steven Siegel, information systems development manager at Nalley's Fine Foods in Tacoma, Wash., said the biggest benefit will come from the better support that a larger installed base will bring. "If CA delivers its promise of full upward compatibility, I have no problem," he said. "But that remains to be seen."

How Would You Deal With These Problems?

① The CEO wants a completely overhauled customer information system in 9 months.

② marketing needs external research information in their database to keep ahead of the competition.

③ Accounting needs changes to the old system by the next close.

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MSA hooked on workstations

BY ROBERT MORAN
CW STAFF

NEW YORK — Management Science America, Inc. (MSA) announced cooperative processing products last week that allow its mainframe accounting, human resources, manufacturing and materials management applications to work with workstation-based front ends.

The announcement of its Brightview product line, based on technology from Multisoft, Inc., was also an attempt to recast the fortunes of the money-losing company.

At a time when Wall Street is saying MSA is too dependent on selling mainframe products, Chairman and Chief Executive Officer John Imlay said MSA sees its customers relying more and more on intelligent workstations. To emphasize the point, Imlay closed the lid on a dumb terminal while staging a New Orleans-style dirge, burial and mock encomium in recognition of its demise.

The Brightview product line will cost $25,000 per module for each customer site and is expected to be available by the end of the first quarter next year. It will provide a graphical and pull-down screen-oriented front end on a workstation for an existing mainframe application.

At present, Brightview can run on IBM Personal System/2s, Personal Computer XTs, PC ATs and compatibles that support Microsoft Corp.'s MS-DOS 3.0 or higher. Brian Cohen, MSA's vice-president of technology and research, said Brightview will support Microsoft and IBM's OS/2 and IBM's OS/2 Extended Edition with the Micro-

MSA's Imlay

soft and IBM Presentation Manager by the fourth quarter of next year.

The PCs need at least 10M bytes of hard-disk memory to work with any of the eight micro-to-mainframe link interface boards supported by Brightview, including Digital Communications Associates, Inc.'s Irma/2, IBM's 3278/79 link and Rabbit Software Corp. boards.

MSA's licensing agreement with Multisoft allows it to use the Lawrenceville, N.J., firm's Infront, a personal computer-based front end for mainframe applications that enables a PC user to work with mainframe data using the lower cost machine cycles of the PC.

Multisoft will also provide its Software Distribution Facility, a utility to build applications that automate the distribution of PC files and programs. The agreement also permits MSA to use Multisoft's Super-link, which in the future will allow PC-based front ends to treat mainframe programs as if they were subroutines to the PC application.

The front end's pop-up windows and pull-down screens will be common to the front-end component of each module. They are based on Microsoft's Windows 2.0 and comply with the common-user access component of IBM's Systems Application Architecture.

According to Barabara Penatzer, MIS director at Berkshire Health in Reading, Pa., which uses MSA mainframe applications, the chief enticement of the products are their ease of use. The company has more than 100 workstations. "Many of the users tend to be unsophisticated," she said. "Brightview's ease-of-use features will make them more valuable to the organisation."

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GAO lauds IRS efforts on '88 tax system

BY MITCH BETTS
CW STAFF

WASHINGTON, D.C. — The Internal Revenue Service — whose computer systems were the horror story of 1985 — got a rare pat on the back last week for its successful handling of the 1988 tax-processing season.

The kudos came from an unusual source: the U.S. General Accounting Office (GAO), which is known for its highly critical audits of government information systems.

GAO reports typically assail agencies for inadequate MIS planning, testing and controls.

But the GAO's study of the 1988 tax season, which was particularly stressful because the IRS had to implement extensive software changes in response to the Tax Reform Act of 1986, simply concluded that "the IRS did a good job."

Smooth as silk

"Returns were processed, refunds were issued, telephones were answered and computers ran relatively trouble-free," the audit said.

That was not the case in 1985, when a

trouble-plagued cutover to Sperry Corp. mainframes and new Cobol software programs caused major delays in processing tax returns and sending out refunds [CW, April 15, 1985].

Unlike the 1985 season, the GAO reported, mainframe capacity at the service centers in 1988 was sufficient, and the IRS had finished modifying and testing its software by Feb. 1.

In essence, the GAO praised the IRS for its effective preparations for the heavy work load and changes brought about by the massive tax reform act. For example, the IRS hired additional returns-process-

ing staffers, reduced processing backlogs to the lowest level in three years and conducted operational readiness checks at all computer centers.

High rating

The result was that between Jan. 1 and April 30, mainframe computers at the 10 regional service centers had an availability rate of 98.1%, meeting the IRS' standard of 98%.

The software proved reliable as well, the GAO said, adding that there were two instances in which the IRS spotted software errors and took prompt corrective action that prevented any work delays.

The only computer-related problem that the GAO uncovered was a slight uptick in the number of data-entry errors.

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TEXAS
INSTRUMENTS

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Compiler lets RT run RPG II

BY AMY CORTESE
CW STAFF

A new compiler reportedly allows RPG II programs to run on the IBM RT under AIX. The product, called RPGII/IX, is a joint development effort by Jacore Technologies, based in Marietta, Ga., and Software Ireland, based in Belfast.

The venerable IBM System/36 departmental computer is known for the wealth of software applications written for it — as many as 5,000, by some accounts.

With RPGII/IX, these applications are now available to any RT customer who wants time-proven software, according to Jacore Vice-President of Technical Services Dick Lamborn.

The compiler might also be used with an RT linked to a System/36 for office automation and in cases in which a customer moves from a System/36 to an RT, Lamborn said.

RPGII/IX does not convert the RPG II program, but rather compiles the program on the RT so it can run under AIX. The compiler could be ported to other AIX platforms such as the IBM Personal System/2 and 370 architectures, Lamborn said, although whether or not the firm does so will depend on demand.

Jacore also markets versions that compile RPG II programs to run on other Unix-based systems, such as the AT&T 3B series and NCR Corp. systems, under AT&T's Unix System V.

The compiler, available immediately, is priced at $7,500 for the development system and $3,000 for the runtime portion, which is required for each compile. Jacore has an exclusive agreement to license the product in the U.S.

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EDITORIAL

A different tune

THE MASSIVE COMDEX/FALL '88 show in Las Vegas last week featured a new wrinkle in conference keynote addresses. Instead of having just one keynote speaker, there were six, including major spokesmen from the likes of IBM (Terry Lautenbach), Microsoft (Bill Gates) and Compaq (Rod Canion).

The title of the keynote session was "The last decade . . . and the next," which didn't stop half of the speakers from delivering self-serving — not to mention dull — oral advertisements for their companies.

In this regard, some executives, like some companies, showed that they still don't grasp the importance of delivering what their audience wants and needs. Instead of addressing issues, they spew forth pabulum laced with the company line. Similarly, some companies, often key vendors, pay nothing more than lip service to their customers' needs and the needs of an increasingly sophisticated marketplace in general.

That is why it was refreshing when Philippe Kahn, the audacious president of Borland and one of the six keynoters, ambled to the podium and delivered a singeing criticism of the personal computer industry.

The industry has not really come that far in the last 10 years, Kahn noted, because users still must become computer-literate. Corporate users, Kahn continued, do not have the basic tools they require.

Kahn also did his part to debunk the dim-witted view of micro myopics, who envision a world soon in which PC networks replace minis and mainframes. Instead, he painted a picture of the next decade in which machine specialization is taken to the next highest order of magnitude — in which mainframes and minis do what they do best, such as management of massive databases, and PCs provide sophisticated local processing independent of large-system CPU cycles.

Inspired by Kahn's, AT&T's Robert Kavner also challenged his vendor community to deliver solutions that fit the users' needs, not the vendors'. He spoke of an emerging democratization of the buying process in which the customers choose according to their needs, and not necessarily according to what is brought to market.

Customers will agree that it was refreshing to hear this rising chorus from the vendor community, which has a lot more ground to make up than it may think in terms of regaining customer confidence. Last year, in one of the biggest stumbling blocks of PC software and hardware buying trends ever done, users were asked where they go for product information and insight. One of the last places they go is to the vendors themselves — for product information!

Why is this? Because users are fed up with promises that vanish into vapor. And, as Kavner said, because the PC industry is still struggling to move beyond the point illustrated by the unimaginable example of a person getting a rental car: You pick up your keys, your rental agreement and your 500-page instruction manual.

LETTERS TO THE EDITOR

Learning first

Naomi Karten [CW, Oct. 17] was on the right track in the first place. I do not go to a presentation to be impressed by a person's credentials or expertise; I want to learn something. When a presenter does an excellent job of communicating about the topic, then I am indeed impressed.

A good communicator understands how to use tools that help convey the message, and that includes effective slides. Any slides should support the point or points that the speaker is trying to make.

Too often, people fill their slides with so many words that the audience must ignore the speaker to absorb it all. This opposes the whole idea, which is to hear what the person has to say. Besides, one can find more congenial environments for reading about a topic.

Roger Berr
Boston

Word intensity

Regarding Naomi Karten's piece discussing the pros and cons of graphics in business presentations [CW, Oct. 17], it seems that she has confronted a typical dilemma. "A picture is worth 10,000 words" may be true, but in today's business environment, it is not clear which 10,000.

Perhaps those in her audience who sought word-intensive slides were doing so because they hoped to return with copies of the presentation for others in their companies who were not present. In this case, pictorial slides can leave much to the imagination of the "second-hand" audience.

The solution, obviously, is to hand out the prepared text of the presentation along with the graphic slides. My experience has shown that the lack of "words plus graphics" in many business presentations leaves so much room for interpretation that confusion and inefficient communications often result for those not in the immediate audience.

Dennis J. Crane
Manager, Mountain States Region
GE Information Services
Englewood, Colo.

This week in history

Nov. 20, 1978
On the drawing boards at Xerox Corp. is a domestic digital communications network that will use a combination of satellite and radio lines. Xerox files a petition with the Federal Communications Commission for a band of radio frequencies in the 10-GHz range to be allocated for common-carrier electronic message services. If the plan is approved, Xerox will establish a separate subsidiary to offer Xerox Telecommunications Network, or Xten.

Nov. 21, 1983
Digital Equipment Corp. announces the VT200, claiming the terminal series costs less, offers more features and sports a better design than its predecessor. Compatible with the widely popular VT100, the three VT200 models add reverse video, character highlighting and special function keys.

Take a challenge

Regarding your column on computer-generated slides [CW, Oct. 17], Naomi Karten wrote that after giving several presentations in the recommended style, she came across one group of MIS directors who did not like that style. Now she thinks that the recommended style is wrong, at least for some groups.

What needs to be done with the MIS group is to show them that they get more from a graphical presentation than from the standard wordy one. This can be, for instance, done by giving them a test to see how much they remember after one week (probably not viable in real life).

What annoys me is that she sounded like she was giving up her graphical presentation just because one group disliked it. It is a sad commentary on that type of group that, as she said, "You have to confound people in order to impress them."

Jerald Levinson
Wailuku, Hawaii

Just wondering

I just finished reading the barrage of letters from South Africans [CW, Sept. 12] blasting your editorial of June 20 and instructing you that sanctions would only worsen the blacks' situation in South Africa.

I wonder how many of those who wrote were black?

Sheryn Young

Computerworld welcomes comments from its readers. Letters may be edited for brevity and clarity and should be addressed to Bill Laberis, Editor, Computerworld, P.O. Box 9171, 375 Cochituate Road, Framingham, Mass. 01701.

Sifting through the presidential sands

JOHN BARNES

We now enter the all-too-brief transitional period in which George Bush, the elected 41st president of the U.S., will try to figure out his priorities and put together a team to carry them out.

One issue that will not go away ended up on the back burner during the campaign: the general competitiveness of American industry.

Much of the attention now, quite rightly, will have to go to the industries that are in real trouble. After all, a dairy farmer generally puts more time into nursing a sick cow than he would a healthy one.

The onus to play

On the other hand, it is worth devoting some time to keeping the healthy cows healthy, because they are the ones that pay the bills.

So, Mr. Bush, here are a few things you could think about during these weeks of transition — not because we are in real trouble yet, but to keep us from getting into it.

probably the most important factor, the creation and incubation of new high-tech industries to service the project.

There are lots of projects to choose from today: going to Mars, building a permanent lunar settlement, eradicating a major disease and creating a terrafou supercomputer.

The reasons for choosing any project should be political, rather than technical, but we should do at least one.

• Set an example, as past presidents have, by using the latest technology.

Put a microcomputer on your desk and let us see you using it. Too many people are afraid of computers, and far too many think a good job is one in which you do not have to actually do any work.

You have got what is supposed to be the best job in the country. Let us see you handling information in an efficient, intelligent way — and handling it yourself.

If your predecessors could set the example in home electrification, air travel, refrigerators, automobiles and — according to legend — the bathtub, think what you could do for this country's habits and attitudes about computers and work.

• Encourage the De-partment of Defense to buy off the rack.

Yes, high-tech firms do make more money on the present "design and build to government specs" system.

But how many person-hours of our best technical people are going into the $7,000 coffeepot, and how much of that time is diverted away from research for the commercial market?

What's good for one firm in the short run can be a slow hemorrhage to the industry in the long run.

Technically trained people are less valuable for the Depart-ment of Defense to be throwing away years of their productive lives on meeting unnecessary specifications.

The time a talented develop-er spent designing a keyboard that could have been bought off the shelf is time that did not go into staying ahead of foreign competition or researching new products.

• Since the budget is apt to be tight, consider the "market guarantee" strategy for some in-novations.

One famous example was the U.S. Postal Service's open offer to virtually anyone to provide

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> YOU HAVE GOT what is supposed to be the best job in the country. Let us see you handling information in an efficient, intelligent way.

Historically, some of the most effective things you can do for high-tech are the following:

• Start something big and com-mit to it in a big way in a civilian area.

The obvious historical exam-ple is the Apollo Project; in a real sense, the American high-tech industry is still riding the wave it started.

There are other examples, in-cluding Antarctic exploration and the work of the National Ad-visory Council on Aeronautics between the wars and nuclear fu-sion work.

They have all had some of the same effects, namely the genera-tion of basic research, the train-ing of thousands of scientists, en-gineers and technicians, the rapid diffusion of technological knowledge through university and business participation and,

Barnes is the Pacific Northwest area manager for ADG, a high-tech marketing organization based in San Pedro, Calif.

Gold among the silver threads

JOHN KIRKLEY

For those of us who have seen the half-century mark come and go, it is encour-aging to hear a story like the one recently told to me by Du-laney Foster Jr., a top executive at the recruitment firm Korn-Ferry International.

"I was contacted by a highly decentralized international cor-poration that was creating a new position — corporate director of information systems," Foster said. "They wanted direction at the top, but at the same time they decided to maintain a high degree of autonomy within the individual units," he said.

He added, "The new manager would have no staff and would re-port directly to the chief financial officer. We were asked to help create and fill the position. They were extremely specific about one of the qualifications. They said, 'We want a 55-year-old per-son.'"

The organization listed sever-al reasons for specifying an older executive. For one, having a

Kirkley is a computer industry writer, editor and consultant based in Warwick, N.Y.

younger person might be taken as a signal to the various infor-mation systems organizations that the career ladder into cor-porate America was closed.

Also, because this business operates around the globe, ex-tensive international travel is re-quired.

Sweeten the pot

The organization sweetened the job description by making provi-sions for spouse travel as well, reasoning that an older couple would be empty nesters free to

roam the world at will.

They also told Foster that they wanted someone who would be able to deal with top ex-ecutives from different countries and cultures.

Filling the bill

In short, they wanted someone with statesmanlike abilities, ac-quired wisdom and aplomb.

How did it all work out?

"We found a highly experi-enced IS manager who had taken an early retirement from his

TOM LULEVITCH

Letter leaves bitter taste in mouth

MICHAEL ALEXANDER

Two weeks ago, this newspaper ran a letter to the editor from an independent consultant who questioned why there is a need for a black profes-sional data processing associa-tion.

The writer had read an article (CW, Sept. 26) about the recent activities of the Black Data Pro-cessing Associates (BDPA), a 10-year-old trade group for black computer industry profes-sionals, and questioned why such a group should exist. "I would hope in today's world that groups do not require member-ship based on race, sex or creed," he wrote.

In my view, this letter was both offensive and probably inap-propriate for publication in this newspaper. At best, the writer's view is exceedingly naive.

Alexander is a Computerworld senior editor, microcomputing.

I, too, would find organiza-tions such as the BDPA strange if we lived in a world where wom-en, blacks and other minorities were given equal pay and equal opportunity. But I know that this is certainly not the case — not in this nation's MIS shops or, for that matter, in its newsrooms.

According to a survey of 1,850 members of the Data Pro-cessing Management Associa-tion that *Computerworld* pub-lished Jan. 18, only one in 20 data processing professionals belongs to a minority group.

The writer of the letter said, "It would be interesting to know what the benefits are to have such a group" as the BDPA.

Smoothing the path?

The article noted that the BDPA seeks to influence federally fund-ed educational programs and the hiring practices at Fortune 500 companies. Further, it aims to smooth the path for the next generation of black MIS profes-sionals by providing guidance and training to black students in low-income neighborhoods.

One student quoted in the ar-ticle said that he is struggling to hold on to his goals in the face of such obstacles as "peer pres-sure, drugs and guns," all of which he said he confronts in his neighborhood.

A lot more of us ought to give some thought to serving as role

models for this country's youth, disadvantaged or not. That, I be-lieve, is what the BDPA at-tempts to do.

I cannot understand why the writer has difficulty accepting that many Americans seek to join organizations composed of individuals with similar back-grounds, objectives or points of view. Pick up any telephone book in any city in this country, and you will find listed in it doz-ens of groups whose members lay claim to being Irish, Greek or Italian, for example. Yet this writer seems to think that it is unusual that there exists a group whose members wish to be iden-tified on the basis of race.

From an article that covers several aspects of the BDPA's activities, the writer singles out that its membership is black. Making note of that fact and no other is what I find unusual.

Certainly, my point of view is arguable. But one has only to be subjected to bigotry a few times to be able to see it, even at a dis-tance, or in letters to the editor such as this one.

Perhaps what bothers me even more than the letter is that the headline — "Who needs race?" — displays a lack of sensi-tivity on the part of this newspa-per's editorial management. In-deed, I cannot decide which of the two — the letter or the head-line — is more offensive.

Kirkley

company," Foster said.

"He was acting as a consultant, but he was one of those people who just wasn't cut out for the consulting life. He wasn't making it," he said. "When we offered him a job that would double his earnings and pay for his wife to join him on his worldwide travels, he didn't have to think twice."

A happy ending for that gray panther.

Robert Cowan, president of Los Angeles-based recruiting firm Search West, said that today's employers have less choice when it comes to selecting youthful employees.

"The 16- to 34-year-old employee base is shrinking," he pointed out, "and the trend will continue over the next several decades. The work force is aging. Over the last seven or eight years, the average employee's age has risen from 34.8 years to 37.3. With the present low unemployment rate of 6%, there are fewer people to fill jobs," he continued.

"There are even fewer people available to fill openings in the managerial ranks. Among managers, unemployment is running only 1.8%."

Stereotypes linger

But Cowan feels the traditional problems confronting the older worker hang on — the stereotypes that with gray hair comes inflexibility, the inability to learn new

skills and a loss of enthusiasm and commitment. Not true, Cowan said. "First of all, it is illegal to discriminate because of age. But even more important, I tell my clients, 'Forget your preconceptions about an ideal candidate. Simply ask the question, Can this person do the job I need to fill?' " Often, the older employee is the right person for the opening.

OLDER WORKERS come with a host of advantages. They are more likely to be loyal to the company, less interested in job hopping and less concerned about scrambling up the fast-track ladder. They are less likely to disagree with corporate decisions — and not out of timidity.

In fact, older workers come with a host of advantages. They are more likely to be loyal to the company, less interested in job hopping and less concerned about scrambling up the fast-track ladder.

They are less likely to disagree with corporate decisions — and not out of timidity. Being in the world for a while usually broadens one's perspective, giving an appreciation for the nuances of a situation.

Late bloomers

One myth is that if you hire someone who is, for instance, 57 years old, you are hiring a short-term employee — someone who will only be with you until retirement at age 65.

In fact, the average job tenure, particularly among younger managers, is only three to five years. You will get more mileage out of the mature worker.

"More and more of my clientele are older people," Cowan said. Waxing metaphoric, he noted, "Often, when we place the older worker in a new job, it's like putting an old plant in a new, larger pot. They grow and flourish."

Barnes

service in the mid 1930s.

However, an astonishing number of other industries got similar boosts at one time or another.

Consider buying space launches, supercomputer time, demographic data or advanced microchips from any American supplier at a guaranteed price, creating a market for desirable innovations.

● Find ways, through the tax system or development contracts, to encourage "engineer featherbedding" — having more and better trained people on a project than it really requires. Japan, South Korea and Taiwan have all used engineer featherbedding very effectively.

When there are too many technical people on a project, they cannot claim credit merely by getting in a lot of hours, so they are forced to be more effective creators and critics.

Moreover, their skills stay sharp and current. The security helps to attract students to technical jobs, and when the project winds down, extra people become extra channels for dispersing the information.

● Push education, but do not sell it as the magical money machine.

Although individuals can advance themselves economically through improved education, there are a lot of other less productive things they can do as well.

If you preach education as a road to getting ahead financially, and the students take you seriously, all we will get are more lawyers and MBAs.

We are headed for a serious weakness in basic research, which gets little respect and hence little money. Here is one place that the bully pulpit could make a big difference.

HARD TALK

Jean S. Bozman

Chameleon in the factory

Nowhere is IBM's effort to blend into an open systems environment more evident than in the factory.

Here, IBM is willing to use any number of means to connect with other vendors' equipment: Ethernet, Manufacturing Automation Protocol, Technical and Office Protocol and a variety of industry-standard interconnects. "We're not the only player out there," conceded IBM industrial-products manager Clay Bowers during last month's Autofact conference in Chicago.

John Klein, general manager of manufacturing systems products for IBM's Application Systems Division, added, "We have to incorporate the reality of the world, which is broader than the world of IBM products."

Of course, IBM does have its own vision of the factory, one that uses Systems Network Architecture (SNA) to communicate with IBM host systems, Systems Application Architecture (SAA), Token-Rings and plenty of Personal System/2s. At the center of such a factory

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Nonimpact makes impression

Popularity of high-end machines to outpace line-printer technology by 1992

BY ROSEMARY HAMILTON
CW STAFF

When printers are mentioned in data processing shops these days, people want to talk about concepts like cold fusion or LED-array technology.

In other words, the attention is focused on nonimpact printers instead of the old workhorse line printers. And by 1992, the numbers of high-end nonimpact units shipped as compared with line printer shipments will show it.

According to Datek, Inc., a market research firm in Newton, Mass., the total number of high-end nonimpact printers shipped in 1992 will be 13,600, up from approximately 4,000 last year. This estimate includes systems

that print at a rate of 36 page/min or more. Meanwhile, the total number of line printers shipped in 1992 will drop from the 43,000 reported last year to 26,000.

The nonimpact printer surge marks a shift that has been slowly under way at large DP shops, according to Diana Takata, a project manager at Ceres Corp., an office automation market research firm in New York. "DP shops are the slowest ones to change," Takata said. "There are still a lot of diehards that want to hang onto their line printers."

Users contacted last week said they do not see a time soon when line printers will be phased aside completely in favor of non-

From behind the line

Shipment projections show nonimpact printers advancing as line printers fall back

THOUSANDS OF UNITS SHIPPED

☐ 1987
☐ 1992

SOURCE: DATEK INFORMATION SERVICES
CW CHART

impact units.

But they also say they rely more and more on nonimpact systems because of their drooping prices, high speeds and flexibility in such areas as typefaces and page size.

According to Datek, the top tier nonimpact market, which includes printers with speeds of 126 page/min or more, is beginning to level off. These systems are typically priced above $200,000, Datek reported.

Meanwhile, the next nonimpact tier, which includes printers with speeds between the 50 and 100 page/min range, is picking up, Datek said.

This tier has prices that start as low as the $70,000 range, a range similar to the very high-end segment of line printers. The high-end line printers offer speeds ranging from 3,000 to 5,000 line/min, Datek said.

Continued on page 30

Redubbed 4381 welcomed into IBM's Enterprise fold

RYE BROOK, N.Y. — The IBM 4381 is apparently no longer the presumed black sheep of the IBM 370 family.

An IBM spokeswoman said last week the mainframe had received the strategic Enterprise System label, which puts it on equal footing with the high-end ES/3090s and low-end ES/9370s.

The 4381s were renamed ES/4381s in September, at approximately the same time that the 9370s were renamed. While the new name was a big part of

the 9370 announcement, IBM did not publicly reintroduce the older 4381 line at that time.

As a result, it appeared that the 4381 was being left out of the strategic ES family, and speculation grew that the 4381's days were numbered. The ES label has been used by IBM to designate mainframes key to its Enterprise System concept.

The IBM spokeswoman said that the name change affects all current 4381 models, including the 370/11, 21, 22, 23, 24, 91E and 92E.

Continued on page 30

Will Unix work for Cullinet?

ANALYSIS

BY AMY CORTESE
CW STAFF

From a company that was once 90% dependent on mainframe DBMS sales, Cullinet Software, Inc. has expanded its product line to include new development tools and applications across platforms spanning mainframes to PCs.

However, the rollout last week of a Unix version of the Enterprise:DB database management system marks Cullinet's entry into the most unfamiliar territory yet.

Cullinet customers contacted last week were only mildly interested in the Unix products. Like the majority of Cullinet's customer base, they were IBM mainframe shops with no current plans to implement Unix. "I think it's a good move and will strengthen the company," said Ed Galloway, manager of application development for the City

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Inside

● Switch from 38 to AS/400 goes smoothly. Page 29.
● Mainframes monitor distributed processing onslaught. Page 29.
● The systems roll out at Comdex/Fall '88. Page 32.
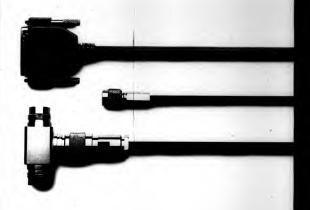
The printers used by more people can now be used in more places.

Now you can connect the world's best-selling, best-performing dot matrix printers to your mini, mainframe *and* personal computers.

The connection works this way. An Epson-approved interface board easily installs into an Epson® printer, making it fully compatible with your Systems/3X,

AS/400™ or 3270 environment. It's that easy.

The hardest part is deciding which Epson to use. There's the LQ Series–the number one line of letter quality printers in America. Or Epson's legendary FX printers, famous for their unrelenting reliability. Finally, there's the Epson DFX-5000. With a print speed

of 533 CPS, this high-volume workhorse is a smart, economical
alternative to costly line printers.
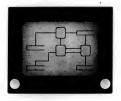
In short, when you hook up Epson printers, your users get
greater selection, better paper handling and outstanding performance.
Your company gets a tremendous value. And you get all the credit.

Of course, by now you've probably made that connection.

EPSON

**WHEN YOU'VE GOT AN EPSON,
YOU'VE GOT A LOT OF COMPANY.™**

AS/400 switch smooth

BY ROSEMARY HAMILTON
CW STAFF

BLOOMFIELD HILLS, Mich. — The MIS staff at a major advertising firm here has had relatively smooth sailing in switching from IBM's System/38 to the Application System/400. And that was not what his team was expecting, according to Rick Pinkos, vice-president of data administration and technical services at D'Arcy Masius Benton & Bowles.

"When IBM warns you that there may be problems, it's because they are concerned," Pinkos said. "And based on the conversions we've been through before, we expected the worst. But that didn't materialize."

With expectations of a difficult conversion from two System/38s to two AS/400s, the D'Arcy MIS staff began planning two months before the first system arrived. An AS/400 B30 was delivered in September, and a B60 arrived last month.

The planning operation focused on two issues. First, the advertising agency's programmers had been fine-tuning the System/38 environment for years, which meant there were several in-house written utilities and programs that might not be accepted on the AS/400 environment.

Second, the MIS staff wanted to network dozens of personal computers at the agency's offices nationwide to the new AS/400s at headquarters. In turn, they wanted to link the AS/400 to a wide-area network that would connect international offices to

Pinkos

headquarters. This would require new technology, such as the AS/400 Token-Ring adapter card. That requirement concerned the MIS staff because it had not used the card before.

So far, the first major issue has been put to rest, Pinkos said. Using IBM's migration-aid software, the MIS staff was able to flag all the code that would not be accepted by the AS/400. Of 3,500 programs prepped for conversion, 20 required manual rewriting, according to Pinkos.

The networking issue, however, is not yet resolved, because the network will not be implemented until IBM delivers the next release of the AS/400 operating system, which has additional communications support, and the Token-Ring adapter cards. The next release of OS/400 is due at the end of this month, and the adapter cards have been scheduled for a December shipment.

The conversion has not been without its glitches. The MIS staff encountered bugs in the migration aid that initially slowed the process. When the staff requested a tape of AS/400 software fixes from the IBM Electronic Customer Support (ECS) facility, it received a tape that had some, but not all, fixes.

D'Arcy, which handles advertising for such companies as Anheuser-Busch Co. and General Foods Corp., has been running System/38s since the early 1980s.

The agency will use the B30 for development work and a top-of-the-line B60 as the production system. Pinkos said the B30 is up and running and that the cutover to the B60 was scheduled for last weekend.

Large systems at a low point

BY J. A. SAVAGE
CW STAFF

SANTA CLARA, Calif. — Distributed processing is making inroads into, but not killing, the mainframe market, according to market research firm Infocorp at its annual trends conference last week.

The worldwide market for mainframes is growing in step with the computer market as a whole, accounting for one-third of the total, but that is slower than in the past.

Still, the absolute market in dollar value for mainframes is in-

creasing, while the percentage of unit sales is decreasing. According to Infocorp, that decrease is occurring because mainframes are losing sales to minicomputers.

U.S. share shrinking

When the mainframe market figures are broken down by country, the U.S. share of the global market is at an all-time low — three percentage points under its normal 44% portion.

Although minicomputers are taking over many applications, losing unit sales stand out worry vendors because networks

are growing, according to Bonnie Digrius, Infocorp's director of large-systems research. "While network MIPS are replacing mainframe MIPS, more networks need large systems to drive them."

The fastest growing applications among large systems will be in the finance and insurance markets, with a compound annual growth rate of 11% in the next five years. Following that in public service, as distinct from government, with the highest dollar value — expected to be $7.4 billion by 1993, with a growth rate of 9%.

Apollo, Sun form unexpected link

Apollo Computer, Inc. and Sun Microsystems, Inc. on the same team?

The workstation rivals have teamed up with two other competitors, Hewlett-Packard

Co. and MIPS Computer Systems, Inc., to form the Systems Performance Evaluation Cooperative (SPEC).

The nonprofit organization, sponsored by the publication

Electronic Engineering Times, intends to establish a set of standardized performance benchmarks to address the class of emerging high-performance computers, such as reduced instruction set computing-based architectures.

The benchmarks, to be available early next year, will be designed to reflect a system's performance running typical real-world applications.

Cognitive Systems, Inc. in New Haven, Conn., said it has completed porting its message processing products for books to IBM mainframes. The products — Atrans, Aclass and Textkey Extractor — read, interpret and automatically format financial transaction messages between banks. The products take advantage of IBM's new common LISP product.

Cognitive Systems develops knowledge-based, natural-language software.

Data View

The VAX is in the mail
VAX 8000s lead the list of on-order and planned systems at U.S. DEC VAX sites surveyed between June and August*

PERCENT OF PLANNED PURCHASES

Microvax II

Microvax 2000

Microvax
3500/3600

VAX-11/700
series

VAX 8000
series

VAX 6000
series

*The Q3 '88 figures are from a mail survey. Figures as of Oct. 4, 1988. And press it's only power-related use it fits higher spaces.

SOURCE: COMPUTER INTELLIGENCE
CW CHART

Bozman

would be some IBM mainframe or another, perhaps an ES/9370 or ES/4381 remote processor, probably running a flavor of VM.

IBM's marketing problem is this: few factories have the luxury of creating a computer-integrated manufacturing (CIM) system from scratch. The corporate customer may already have an IBM mainframe at headquarters but may use multiple Digital Equipment Corp. VAXs for factory management.

"You don't swap out your factory as you go along with CIM," said Jim Stidler, director of custom offerings at IBM's Industrial Sector product line division in Boca Raton, Fla. "People are carrying a lot of things with them as they move into

Nonimpact

According to the Market Intelligence Research Co. in Mountain View, Calif., vendor activity reflects the growing interest in nonimpact printing.

The research firm estimates that 200 printer vendors are selling nonimpact units today, compared with a total of three in 1978.

As a result, it is in this arena that a variety of print methods have emerged, including ion deposition, cold fusion and LED-array technology.

Recently, big-name vendors in the printing market, including IBM and Siemens Information Systems, Inc., introduced LED-array units. The IBM 3827, which became available earlier this year, is based on a printer engine manufactured by Eastman Kodak Co. The system, which prints at a rate of 92 page/min, costs $185,000. Siemens manufactures a 50 page/min unit called the 2050 and plans to begin selling it next year for $79,500.

LED-array technology emits light from a stationary source rather than from a device that moves across the page, as is the case with a laser printer. Richard Maglione, a senior hardware analyst at Grumman Corp.'s Data Systems Division in Bethpage, N.Y., recently reviewed the Siemens' offering and said the LED-array printer seemed relatively easy to use, and its output showed excellent quality.

factory automation."

IBM still sees opportunities, though, and has made several recent attempts to tie together factory "islands of automation" with IBM solutions. Last month, one more significant announcement was made for factory users: IBM Plant Floor Distributed Automation Edition (DAE). DAE software allows users to view all factory-floor computers as one single, logical system. It does this by separating machine-specific code from higher level applications-oriented code.

"DAE embraces SAA," Klein said. "Now, a programmer can write his application code in C and it will run on either OS/2 or VM/SP platforms." It also accesses one common CIM database that collects data from all phases of the manu-

facturing process. IBM cleverly designed the common database for access by industry-standard SQL. That move alone allows many computers that are not IBM-compatible to share vital data with the IBM host system.

It also offers the IBM Realtime Interface Co-Processor (Artic) card, which supplants the traditional IBM Series/1's factory role of protocol converter.

Artic allows OS/2-based PC file servers to talk to other vendors' machines. Factory managers can add an Artic board to standard PCs through use of a daughterboard inside the PC housing. IBM also supports Ethernet connections in the backplane of 4381s and 9370s.

Could this unusually open systems attitude from IBM's industrial sector mani-

fest itself in other product areas? You bet. "What we are doing has applicability beyond the plant floor," Klein said. "The plant floor is the most heterogeneous [processing] environment. What might be obstacles [to an open environment] should surface there first. Banks, airlines and Wall Street have the same kind of problems from a communications point of view."

Those who like to sift tea leaves in the IBM teacup had best keep their eyes on what's happening in the manufacturing arena. It may be that the plant floor is the real-world laboratory for IBM's next generation of connectivity products.

Bozman is Computerworld's Midwest bureau chief.

Cullinet

of Baltimore Housing Authority. However, he added, his agency is not considering Unix.

While most agreed that Cullinet's diversification strategy makes sense, there is no consensus on the company's success.

Late start?

Critics have charged that the Unix database market is crowded and that Cullinet is getting a late start. "Cullinet finds itself in a position of playing catch-up," said Ken Burke of Alex Brown & Sons, "and without any distinct competitive advan-

tages." It will be difficult for the firm to assert technical leadership, he said.

From a purely technical standpoint, Charlotte Walker, vice-president of Country Natwest Securities in New York, said the strategy should work. Referring to the functionality of the newest Cullinet products, Walker said Cullinet "has a greater depth of product than many of its competitors, like Sybase and Oracle."

Good product technology does not automatically lead to success, Burke contended. Other factors, such as how Cullinet is perceived as it operates at a loss for a second year, are more important.

Cullinet is shifting its focus from its base, its traditional stronghold, to tools. Some said Cullinet has recognized and is responding to the trend for DBMSes to be-

come a commodity item, with little differentiation between them. Bob Therrien, an analyst at Paine Webber, Inc., said the commoditization of the database engine market may happen as soon as next year, with hardware vendors wresting away control. "Cullinet's strategy is smart," he said, and "they have recognized that tools are the way to go."

Walker agreed. "DBMS will become a commodity, and vendors will differentiate through applications and tools." She said the key to portability is tools — using standard ANSI SQL to develop applications that can run in multiple environments with no more than a recompile. "That's where they [Cullinet officials] want to differentiate."

Burke said that what Cullinet does not

have today is a mainframe DBMS product that is compatible with Digital Equipment Corp. VAX and Unix DBMSes. IDMS/R, Cullinet's original IBM 370 mainframe product, remains distinct from the new product offerings.

Cullinet considered porting Enterprise:DB, formerly called IDMS/SQL, to the MVS environment, according to Walker, but that would have left IDMS/R users with an incompatible DBMS and Cullinet with a two-database strategy — similar to IBM's strategy with DB2 and IMS.

Instead, Walker said, Cullinet decided to undertake the rewriting of IDMS/R so that it would retain compatibility with IDMS/R applications as well as with Enterprise:DB.

The MVS version is expected to be available by the end of 1989.

Software notes

Encore Computer Corp. in Marlboro, Mass., said it formed a joint marketing agreement with Scientific Computing Associates, Inc. in New Haven, a firm specializing in scientific and technical applications.

Scientific Computing will port its software products, which include PCGpak, Clam and Linda, to Encore's Multimax parallel processing computers.

Informix Software, Inc. in Menlo Park, Calif., recently introduced a money-back guarantee on its on-line transaction processing (OLTP) database engine, Informix Turbo. Informix claimed Turbo will perform faster than any other database engine for new Unix-based applications.

Informix is banking heavily on its extended tuning capabilities so that it will not have to make good frequently on the guarantee.

The offer contains a number of strictures: A customer must purchase Informix Turbo between Oct. 10, 1988 and March 31, 1989; customers must return a registration card within 30 days of purchase to notify Informix that they will be developing a new OLTP application; and they must complete the application by Dec. 31, 1989.

Informix reserves the right to have a technical consultant analyze and fine-tune Turbo's performance.

NEW PRODUCTS — SYSTEMS

Data storage

Dilog Corp. has introduced a quad-height small computer systems interface (SCSI) tape host adapter designed for interfacing 8mm cartridge tape drives to Digital Equipment Corp. Unibus computer systems.

The SU723A controller reportedly contains both single-ended and differential SCSI interfaces and supports rates up to 4M byte/sec. in synchronous mode and 1.5M byte/sec. in asynchronous mode.

The SU723A costs $1,875. Quantity discounts are available.

The company has also expanded its Liberty series of tape drives with the addition of an IBM 3480-media ½-in. cartridge tape subsystem.

The subsystem provides DEC Unibus and Q-bus computer users with an easy-to-use alternative for disk backup, the vendor said. The product provides a formatted data capacity of 320M bytes per ½-in. tape cartridge, using multitrack serpentine recording techniques.

A typical installation with one drive and one coupler costs approximately $15,000.

Dilog, 1555 Sinclair St., Anaheim, Calif. 92806. 714-937-5700.

Locom Corp. has announced memory upgrades for the IBM Application System/400 series of mid-range processors.

Based on 1M-bit dynamic random-access memory technology, LCM-400 plug-in memory cards are available in 8M- and 16M-byte sizes, the vendor said. Pricing has been set at $1,500 per megabyte.

Locom, 2350 Bering Drive, San Jose, Calif. 95131. 408-434-1414.

I/O devices

Genicom Corp. has announced a barcode printer that reportedly offers six different bar-code styles as well as oversized character-printing abilities.

The Model 3410XLJ allows 90-degree rotation to accommodate oversized

characters and can print 100 char./sec. in letter-quality speed and 480 char./sec. in draft-quality mode, the vendor said. The unit comes standard with ANSI X3.64 emulation and both serial and parallel interfaces.

The 3410XBQ costs $2,280.
Genicom, 1 Genicom Drive, Waynesboro, Va. 22980. 703-949-1875.

Chromatics, Inc. has announced a graphics workstation designed for use in Unix real-time operating environments.

The CX2000 Color Workstation reportedly integrates the company's Le Mans Colorgraphic display system with a high-performance CPU and up to 600M bytes of hard-disk storage.

Pricing for the 21-slot version of the CX2000 begins at $55,000.

Chromatics, 2558 Mountain Industrial Blvd., Tucker, Ga. 30084. 404-493-7000.

NEW AT COMDEX/FALL '88

These product announcements were made at Comdex/Fall '88 in Las Vegas:

Eastman Kodak Co. announced two "plug-and-play" interfaces designed to connect the company's optical disk System 6800 and most mainframe and minicomputer systems.

The Kodak Optical Storage Interfaces reportedly allow the Kodak 14-in. write-once read-many optical disk system to attach a range of host CPUs via standard interface tape protocols. The turnkey interfaces are desktop or rack-mountable and are priced between $24,000 and $75,000, depending on configuration.

Eastman Kodak, 343 State St., Rochester, N.Y. 14650. 716-724-4000.

Norad Corp. announced two shields developed to protect users from VDT radiation.

Both devices block potentially harmful radiation by more than 99%, according to the vendor. The 19-in. Megashield was designed for large high-resolution color, monochrome and gray-scale displays and is priced at $299. The Flexshield reportedly conforms to the curvature of the bezel used in 13- to 15-in. display terminals and costs $129.

Norad, 1549 11th St., Santa Monica, Calif. 90401. 213-395-0800.

One of the most important reasons
for buying our new LaserJet IID printer
is on the other side of this page.

One of the most important reasons
for buying our new LaserJet IID printer
is on the other side of this page.

The LaserJet IID printer is full
of new ideas for making paper-
handling easier and more
efficient.

An envelope feeder accessory,
for one. Instead of having to feed
envelopes manually, our new
printer does it automatically.

You wanted more paper trays.
So the LaserJet IID printer
has two of them, each with a
200-sheet capacity. Give us more
fonts, you said. And LaserJet

Series II compatibility. Done!
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two HP LaserJet printers. Both
with that superb quality for
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to expect from Hewlett-Packard.

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that's just the icing on the cake.

HEWLETT
PACKARD

MICROCOMPUTING

IBM: A hard habit to break

Standard or stupid? It's hard to like the IBM. The company is far too large, comments from officials are far too contrived, and it has the nasty habit of pounding too many great small companies into submission. Saying nice things about IBM is as hard as pulling Tammy Faye Bakker out of K mart.

Many, particularly IBM's competitors, feel this way and aren't afraid to show it. Listening to the critics, one would think that everything IBM does is either harebrained or diabolical.

But IBM has stood up well under this cascade of abuse, which would move a lesser company to tears. And this heap of criticism blocks out one interesting fact: sometimes IBM does a damn good job. These are the folks that cranked out the sturdy IBM Personal Computer, defined the next level with the PC AT, pushed the market toward the difficult but necessary move to 3½-in. floppy disks and, with Video Graphics Array, provided graphics that won't force us to change our eyeglass prescriptions every year.

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IS looking for staffing solution

Finding and keeping information center personnel a key concern

BY MICHAEL ALEXANDER
CW STAFF

One of the critical problems facing information center managers is finding the funds and personnel necessary to adequately staff their operations.

According to a survey conducted by Crwth Computing Courseware, a computer-based training company located in San Monica, Calif., more than 65% of information centers claim that they are understaffed in a variety of critical job functions, including trainers and product specialists as well as applications development specialists.

Information centers must operate from two different perspectives. On the one hand, they must be an interpreter as well as a provider of MIS technology, and on the other, they must be able to speak the business language of the end user.

Rare birds

Information center support staffers who have the right combination of MIS knowledge and business acumen are difficult to find, information center managers said. Also, the manager may be willing to expend valuable time and resources training and nurturing new hires.

With information center staffers in short supply, many managers are looking to the business side to find end users who understand business systems, information center managers contacted by *Computerworld* said. Other managers are increasingly apt to turn to outside trainers and computer-based training programs to fill the gap, according to Crwth.

"End users are more open to change and are more flexible than they used to be," said Lewis

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Data View

Lotus 1-2-3 fever dips

Fewer large users' are choosing Lotus' meat and potatoes as their predominant or corporate-standard PC spreadsheet

PERCENT OF PURCHASES PLANNED

Gates: OS/2 uses memory

BY JEAN S. BOZMAN
CW STAFF

CHICAGO — Microsoft Corp. Chairman Bill Gates justified the 4M-byte memory requirement for Microsoft's Presentation Manager and fully loaded OS/2 to 900 users at a meeting of the Chicago Association of Microcomputer Professionals, Inc. held here recently.

"We're defining two levels of PC performance — a DOS system with 1M byte of memory or less and a 4M-byte OS/2 system characterized by substantially more power," Gates said. "Many people will continue to

Continued on page 41

Air Force nails future micro specs

BY MITCH BETTS
CW STAFF

BELLEVILLE, Ill. — Attention! The battle to determine who will follow Zenith Data Systems as the standard microcomputer vendor for the military services has begun.

The U.S. Air Force Communications Command, located here at Scott Air Force Base, recently released its specifications for the next generation of desktop micros that are expected to satisfy military users until 1994.

The winner of the bidding contest — the so-called Desktop III procurement — is expected to sell 100,000 to 250,000 units under the two- to five-year contract.

Capt. Stanley Cooper, program manager of Desktop III at Gunter Air Force Base in Alabama, said the contract award is expected in late spring, with deliveries in the summer.

The current contract with Zenith
Continued on page 39

Tandy Computers: The broadest line of PCs in America.

The New Tandy 4000 LX

Get the power and performance of Intel's 80386 ...at 20 MHz.

To streamline your heavy business workload, turn to the Tandy 4000 LX. With its 32-bit Intel® 80386 microprocessor operating at 20 MHz, the 4000 LX delivers a new level of performance to sophisticated database management and spreadsheet analysis.

Two megabytes of zero wait-state memory make the Tandy 4000 LX ready to use with MS® OS/2, as well as MS-DOS® software. With this much memory standard, the 4000 LX is also ready to use as the hub of a powerful multiuser office system running SCO® XENIX® software. And as

a network file server in a 3Com® workgroup, the 4000 LX provides 20 MHz performance for exceptionally high-speed data transfer.

The Tandy 4000 LX is highly expandable. Three front-panel device slots and eight expansion slots give power users the flexibility needed in configuring the optimum system.

And for entry-level 386™ power, we offer the original Tandy 4000. Using an 80386 processor that operates at 16 MHz, the 1MB Tandy 4000 is the perfect low-cost choice for the heavy power user.

The new generation Tandy 4000 LX and the powerful Tandy 4000. From the best-selling family of PC compatibles made in America.

Tandy Computers: Because there is no better value.™

Intel/Reg. TM and 386/TM Intel Corp. MS, MS-DOS and XENIX/Reg. TM Microsoft Corp. SCO/TM
The Santa Cruz Operation. 3Com/Reg. TM 3Com Corp.

Radio Shack
COMPUTER CENTERS
A DIVISION OF TANDY CORPORATION

Users group hopes for a bite of the Apple

IN PERSON

SUNNYVALE, Calif. — Mike Bailey, commander of the Apple Professional Exchange and a systems integrator at Lockheed Missiles & Space Co., is an Apple Computer, Inc. Macintosh pioneer.

Before the first Mac was introduced, Bailey had been saving up to buy an IBM Personal Computer to use at home. IBM was the standard within Lockheed.

"It was a tough decision because all my work was on an IBM PC," Bailey said. "But the thing with the Mac is that I didn't have to mess around with a large learning curve for new programs. I gave up the standard for better productivity."

Bailey has gone from being an enthusiastic Mac user to doing missionary work. Before forming the Apple Professional Exchange last January at Macworld

Expo/Boston, he was president of the Apple users group within Lockheed.

Bailey has big plans for the new group, hoping it will reach the stature of the Digital Equipment Computer Users Society or Guide, Inc., the professional users groups for Digital Equipment Corp. and IBM, respectively. Enrollment in the users group is growing at a rate of 30% each month, although Bailey declined to offer actual figures. Some 100 corporations are members.

Recently, Bailey spoke to *Computerworld* West Coast correspondent Julie Pitta about Apple Professional Exchange and the Mac's use within Lockheed.

How did the Apple Professional Exchange come to be formed? What is the group's charter?

I was president of the Lockheed

Lockheed's Bailey

Employees Apple users group, which numbers between 450 and 500 members at Lockheed. I withdrew my name from nomination last year so I could start the Apple Professional Exchange.

I am currently the users group ambassador between the two groups. The Apple Profes-

sional Exchange is essentially on a par with DECUS, Guide or Share. It's a nationally based group. We have chapters in San Francisco, Los Angeles and Philadelphia right now. It was established last January at Macworld and we started signing our first members in April.

We are organizing around various supporters: corporations, professional users and developers. This group was designed to share information among professionals in the industry. Not only do we have the knowledge level of professionals, but of developers as well. Some of the third-party developers and members of the press are backing us up with publicity and events. Chang Laboratories is a big supporter and so are Avatar Technologies and Solutions International. There are many corporations supporting us as well.

Continued on page 41

SOFT TIPS

A handy Value Pack

Lotus Development Corp.'s Value Pack is a handy and cheap utility for 1-2-3 that removes the copy protection, improves performance and provides additional device drivers. But Value Pack does nothing unless it is properly installed.

However, the installation of the Speedup and Learn add-ins included in Value Pack may cause an error message when running A View of 1-2-3 from the access menu. To correct this, exit the program entirely and run A View of 1-2-3.

If you receive the error

message, "This version of xb1-2-3 has not been properly unprotected" when trying to start 1-2-3 after running the utility in Value Pack, type "Delete 123.*" from your 1-2-3 directory and recopy the 123.* files from your system disk.

The Adobe System, Inc. Postscript drivers that come on the Value Pack disk work only on IBM and token-ring networks or on PCs directly connected to the printer.

Information provided by Corporate Software, Inc., a Westwood, Mass.-based software reseller.

Oracle opens its structure

BY DOUGLAS BARNEY
CW STAFF

BELMONT, Calif. — In what some view as a defensive move against coming database server competitors, Oracle Corp. announced that it is opening up its formerly closed database management system architecture.

The turnaround in strategy was announced recently in conjunction with an Independent Software Vendor program that encourages third parties to develop so-called front-end applica-

tions to Oracle's unshipped OS/2 Server product. This product is expected to ship early next year.

"What you see is competition in action," noted Fabian Pascal, an independent relational database consultant based in Washington, D.C.

Strategy questions

Oracle's proposed computer-DBMS strategy has been criticized on several fronts. For one, Oracle on the PC is essentially the same product that runs on minis and mainframe computers. This is fine for applications portability, but it also adds a lot of large systems baggage that PC users either do not need or feel uncomfortable with, critics and Oracle customers said.

But perhaps a larger area of weakness has been Oracle's closed posture, industry analysts

Continued on page 39

Filemaker gains Mac data import edge

BY JULIE PITTA
CW STAFF

MOUNTAIN VIEW, Calif. — Corporate users say they like the multiuser capabilities and ability to import files from one Apple Computer, Inc. Macintosh application to another provided by Filemaker, a package developed by a formerly obscure third-party supplier, Nashoba Systems, Inc.

Such sentiments have boosted Filemaker to the stature of a leading product in the flat-filer category on the Mac.

According to Dataquest, Inc., Claris Corp.'s Filemaker II, Version 1.0 — formerly known as Nashoba's Filemaker 4 — is just behind Microsoft Corp.'s File among flat-filers for the Mac.

Dave Perro, an industry analyst at Dataquest, said Filemaker is currently selling at a brisker pace than File. Filemaker and File are classified as flat-filers because they lack the relational capabilities of richer database managers.

Dataquest estimates that Filemaker — including all four versions of the product since its introduction in 1985 — has an installed base of 50,000 units. Filemaker II, introduced in June, is the most recent version.

Filemaker II offers multiuser capabilities; as many as four users can share files in a Macintosh network with or without a dedicated file server.

Company officials said that Filemaker II is an attempt to

Claris Filemaker II Version 1.0

Price $299

bridge the gap between flat-filers and more complex database managers such as Fourth Dimension, a Mac relational database manager from Acius, Inc.

The popularity of the product caught the eye of Apple's software spin-off Claris Corp., which acquired Nashoba last summer and repackaged Filemaker under the Claris label.

Karen Westphal, a systems analyst specialist at Hughes Air-

craft Co.'s Ground Systems Group in Los Angeles, said Hughes is using all five versions of Filemaker, including the Claris-labeled version.

"I like Filemaker because I can design all my meeting notices on MacDraw and then import the address lists on Filemaker to layout so that they can be pasted on for mailing," Westphal said.

Other information stored using Filemaker is a list of all software borrowed by the group's users, Westphal said. To date, there are 164 copies of Filemaker within Hughes.

FILEMAKER II is an attempt to bridge the gap between flat-filers and more complex database managers.

Mike Bailey, systems integrator for Lockheed Missiles & Space Co., said he prefers Filemaker over File because it is "output-oriented. I can design forms for output quite easily on it. I haven't seen the newest version of File, but when I used it before, it lacked a forms generator."

Bailey said he would like to see the drawing feature on the package improved and would like it to be integrated with a scanner.

"I'm hoping that Claris will do something more with it," he said.

Ship Advisor allows smooth sailing

BY MICHAEL ALEXANDER
CW STAFF

An expert system is making sure that Canadian inspectors of marine communications equipment are sailing smoothly along.

The Ship Advisor is an expert system designed to help officials in the Canadian Department of Communications identify and enforce regulations governing radio, radar and other communications gear used on ships, explained Glen Lockwood, an engineering manager with the spectrum management sector of the department.

The sector manages the Canadian radio spectrum and is responsible for issuing radio licenses. It also monitors the use of private radio by ships in Canadian waters and regularly inspects ships to verify whether they are equipped with the proper gear.

"The Ship Advisor enables users to readily draw upon the human expertise that is integrated into the system," Lockwood said. "In other words, from the expert system, an inspector will receive the same answers and information that he would receive from a senior department or Coast Guard officer familiar with all of the rules and regulations."

Runs on ATs

The expert system, in operation since 1987, was developed using the Knowledge Engineering System, an expert system shell from Software Architecture & Engineering, Inc. It runs on an IBM Personal Computer AT and sells for $4,000.

The Department of Communications' inspectors of marine communications equipment had long clamored for a more practical way to enforce Canadian Coast Guard regulations. The regulations, contained in a manual that was an inch thick, were often difficult to interpret or simply not used regularly.

"In some areas, perhaps only a dozen ships are inspected all year, so department inspectors did not become familiar with all of the regulations," Lockwood said. "In other areas, different inspectors interpreted the same regulations differently."

One person — a senior Coast Guard officer — was familiar enough with the regulations to be considered an expert on them. When an inspector was unsure of how to interpret a regulation, he had to track down and query the Coast Guard officer.

To develop the system, Lockwood interviewed the Coast Guard officer. During a period lasting more than six months, the two compiled an expert-system knowledge base that contained all the regulations and legal documents that the inspectors required. The information was categorized into "production rules" that allowed inspectors to ask "if-then" questions of the system, Lockwood said.

Covering the bases

More than 140 production rules are used to handle inquiries. In response, the systems give end users information related to the required equipment for each type of ship and how to verify whether the equipment is installed and operating.

The Ship Advisor, which is bilingual to accommodate Canada's French- and English-speaking citizens, has two key components. The first, called the Training Package, is used to educate end users and provide answers to inquiries about a specific ship. The package offers users information about which production rule is applicable for each case and cites the legal document on which it is based.

The second component, called the Office Support Package, is an expert system embedded into a program written in Microsoft Corp.'s C language with two main features. It stores, maintains and updates information about each inspected ship and its required equipment, and it generates checklists and other forms for ship inspections.

Finkelstein
FROM PAGE 37

others who have recklessly played with user expectations. Other equally guilty vendors such as Oracle have so far managed to escape industry scrutiny and remain unscathed. Unfortunately, the many firms that have rigorously met their ship dates rarely get credit for their efforts.

The vaporware scare has had a negative impact. Vendors have retreated to the other extreme and are now withholding announcements until the very last minute. This is a disastrous situation. How can users properly plan their data processing environment if they are completely in the dark on what is coming up in the next six months or a year? When I make recommendations to my clients, I feel like I'm grasping at straws.

We have reached a point where vendors are ridiculed if they announce a product more than a month ahead of time. The problem is not early announcements; those are good for the industry. The problem is chronically late or disappearing software. Some vendors announce dates knowing they can never meet them. Others release products but then drop them without warning. I call these products evaporateware, as always, the big loser is the user.

Users also have to be more realistic about their expectations. Projects can be delayed for a variety of reasons. I know of many corporate projects that have been delayed for years, not just months; some never even get implemented. Let he who has never been part of a delayed project cast the first stone. The industry has become unrealistic in its expectations, and the vendors have become gun-shy

in announcing new products. It's time to make peace.

One thing that upsets me more than vaporware is the flagrant misuse of words and ideas by software vendors. If an audio dealer called a phonograph a compact disc player, he would probably be required to tone down his pitch or face heavy fines. But that's not so in DP. Practices run more along the line of presidential campaigns: "If it's a good sound bite, then use it" seems to be the attitude.

The problem is particularly acute in the database management system world, possibly because these programs are more complex than spreadsheets or word processors. Concepts such as relational, SQL and distributed databases are bandied about as if they have no meaning.

Goofing 'em on

Rather than trying to stop these practices, the industry encourages them.

I think we should start insisting that words are used accurately in advertising and presentations. We should also insist that vendors announce reasonable schedules and hold them accountable for them. The IBM Guide users group is very effective in keeping IBM honest, and PC users should form similar national organizations. In Chicago, the Chicago Association for Microcomputer Professionals, led by Julian Horwich, does an admirable job encouraging information exchange among its members.

I'm not quite ready to call in consumer crusader Ralph Nader, but I think it is time vendors and the industry as a whole start cleaning up their acts.

Finkelstein is president of Performance Computing, Inc., a company specializing in relational data base technology, and publisher of "SQL Review," a quarterly newsletter.

Air Force
FROM PAGE 35

nith, under which nearly 300,000 Zenith Z-248 micros have been purchased in the last three years, reportedly expires in February.

The Desktop III request for proposals specifies two basic configurations: A low-end workstation with 2M bytes of random-access memory, expandable to 16M bytes; and an advanced, 32-bit workstation with 4M bytes of RAM, expandable to 16M bytes.

Each version will have an internal 3½-in. floppy disk drive and a mouse.

Desktop III units are expected to support multitasking and local-area networks and use operating systems that are IEEE Posix-compliant or equivalent to Microsoft Corp.'s MS-DOS.

Desktop III systems may also act as intelligent workstations linked to AT&T 3B2/600 systems under the recently awarded Air Force minicomputer contract [CW, Nov. 7].

Special effects

Air Force officials noted that the Desktop III micros must allow effective integration with the existing inventory of Z-248s and Z-184 laptop micros.

"Even though we are moving toward the Desktop III procurement, most users of the Z-248s or the earlier Z-100 series models will not replace these systems under the new contract because their existing computers satisfy their needs," said Maj. James G. McConeghy, the Air Force small computer program manager, in a statement.

Military agencies also will be able to order special options under the contract, such as 19- and 26-in. color monitors, hard disks, optical storage devices, printers, scanners and facsimile cards.

Oracle
FROM PAGE 37

point out. End-user and application development tools for Oracle products have been developed almost solely by Oracle. But because Oracle is still new to the PC market, its end-user tools were considered too unfriendly.

With the Ashton-Tate/Microsoft/Sybase SQL Server poised to ship in the coming months and IBM's OS/2 Extended Edition Database Manager set to include server capabilities by the middle

of next year, the competition for Oracle is heating up.

So far, Oracle has gathered scant support for its DBMS. Borland International has announced that the Paradox DBMS will support Oracle, as have natural-language vendor Natural Language Products, expert system provider Neuron Data, Inc. and desktop publisher Megahaus Corp. With Oracle's large installed base, more vendors are apt to follow. Such support is critical in fending off the incursion of SQL Server and OS/2 Extended Edition.

Gates

get by in an excellent fashion with a 1M-byte DOS system, and we'll continue to enhance both DOS and Windows.

"Some tasks, such as multitasking, require that higher level of memory," Gates told the audience of micro managers, including some from Fortune 500 firms. "True multitasking won't work in a 1M-byte system. We also devote 300K of code to run the graphics engine."

But high-resolution graphics alone are not the only memory constraint, he said. "In OS/2 1.1, there's a trade-off of wanting to run larger applications and being willing to move up to the larger memory required to do that." In contrast, many Windows applications are constrained by their 1M-byte limit, Gates said.

Microsoft was trying to reduce I/O bottlenecks when it decided to bundle the Presentation Manager with OS/2, he said. The combination prevents OS/2 applications from having independent device drivers.

"It simply was a mistake [in DOS] to have applications directly interacting with [peripheral] devices," Gates explained.

The 4M-byte requirement should be sufficient to support a number of new PC-based programs, including database management systems and networking applications, into the mid-1990s. "The 486 will last us eight to 10 years, addressing as much memory as an IBM mainframe can today," he said. Gates predicted that a raft of OS/2 applications will become available by the second quarter of 1989.

IS looking

Smead, MIS manager at Braun, Inc. in Lynnfield, Mass. "They're not afraid of PCs any more." He said that his budget does not permit him to hire all of the support staff that his operation needs. One alternative that he is considering is to find an employee from within the company who would be willing to move into the information services area.

"I would like to hire a PC coordinator with up-front knowledge about what people are doing here and who can transfer that along with technical information about PCs."

This is a sensible approach, according to Bill Jarvis, president of the Toronto-based Transition Group. "Central systems staffs will never have all of the resources that they need," he pointed out. "It is easier to teach end users about the technology than to teach the technology experts about every aspect of the company's business."

Users group

Lockheed has provided travel money, labor hours for people like me.

Apple Professional Exchange promotes corporate users groups. And you're going to see it do certain things at Macworld this year.

One of the things we're going to do is co-sponsor a couple of panels at the show. One panel is going to be centered around the corporate use of database and the other is going to be corporate communications, including networking and telecommunications.

When were Macs brought into Lockheed?

They started showing up in Lockheed when the Macintosh Plus first came out. Lockheed had bought a few Apple Lisas to start with, and when the Mac 512 came out, a few of those started showing up. Most of those were brought in by employees. I brought my own in for several years before Lockheed bought one for me to use.

In the beginning, the biggest use of the Mac within Lockheed was to produce drawings and transparencies — desktop presentation and publishing. That's where the Mac really excelled.

How many Macintoshes are being used today?

My current estimate is about 2,000 Macintoshes. They cover the whole spectrum from Mac Pluses to Mac IIs. There are even a few Apple IIs.

How are those Macs being

used today?

For everything. You name it. I can't think of an application where they're not being used from simple word processing to artificial intelligence. It's the platform of choice for artificial intelligence because of the price/performance ratio.

What other systems is Lockheed using? How is the Mac being integrated with those systems?

I don't know of any major computer system that's not being used at Lockheed. There aren't any real complications in integrating the Mac. The Mac has its own network environment built in, so creating a Mac network is the easiest thing to do. But connecting those networking protocols that are not built into the Mac can become expensive. It means installing extensive hardware in the Mac to do it. Right now, there isn't any major environment the Mac can't connect to.

What is your wish list of new products from Apple?

The top of my wish list is a new Appletalk standard that takes Appletalk up to 3M bit. I have several reasons for that. The Appletalk protocol is compatible with the ISO [International Standards Organization] model that the government says is supposed to be the standard.

How have you seen Apple change as a company?

They are gaining much more corporate awareness. I see some of the desire to bring exciting state-of-the-art products waning. I think it's a natural progression in a maturing company.

But the reverse can also happen. That is, once information center staffers have built up their skills and knowledge, they are vulnerable to poaching from another department or are enticed to move to better paying jobs at other companies.

"We try to hire graduates with a two-year degree from a technical college with a hands-on background with PCs that we can build upon," explained Terry Neal, PC support manager at Kentucky Central Life Insurance Co. in Lexington.

"Once they get in here, they find that there is a vast amount of hardware and software that they can learn about," Neal said. "The bad part is, after six months of training, they find that they can get more money elsewhere. It's tough being a PC support manager for that reason."

Keeping information center staffers motivated and sympathetic to the needs of end users can be challenging, one center manager noted. In addition to their having the technical background, they must also understand applications concerns of

Barney

And perhaps history will prove that IBM did something truly exceptional when it introduced OS/2 Extended Edition. Sure, it may wind up an easy butt of industry jokes, as did Topview or the PC Portable.

Or it may end up sitting on a heck of a lot of PCs, doing work that has never been done before. Combining a well-architected database management system engine with a broad array of communications isn't a bad idea.

The software isn't perfect. In some respects, it's downright awful. It hogs hardware and saps the performance reserves of all but the fastest PCs and isn't much to look at. But as a platform for applications, it's nothing to sneeze at.

Anyone who saw the first version of Microsoft Word probably remembers a piece of software as pathetic as Michael Dukakis trying to play linebacker. But then came Word 2.0 and 3.0 and so on. Now the software is a clear co-leader in the word processing race. Likewise, IBM's OS/2 Extended will see major improvements in performance and interface and will gain the support of some key PC software vendors, including Ashton-Tate.

If it comes together, critics will be wiping egg off their faces for years to come. And IBM will

sell them the washcloth.

Like a cheap New York apartment. Whenever a company releases a product as big and complex as Dbase IV, there are bound to be cracks in the walls. And seeping out of those cracks is usually a steady stream of bugs. After poking around this program, users started to disturb these little nasties and were kind enough to tell us about them.

When asked, Ashton-Tate told a different story. The firm said it had heard of few bugs and gave us the names of other users to call. We called and found more bugs.

Well, it's time for Ashton-Tate to put on its ponty shoes and start kicking the cockroaches trapped in the corner. And at the same time, the firm needs to mix up a batch of plaster and fix those cracks. Users may once this Dbase apartment is cleaned up, they'll be ready to move in. They just don't want to keep a can of Raid handy every time they computer.
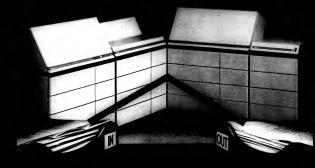
If only software was this early. It was slated for delivery next week. Instead it arrived Nov. 13 at 8:04 a.m., a full two weeks early. And at 6 pounds 4 ounces, the package was complete and functional. So welcome to the world Lauren Emily Barney, and thanks, Lynn!

Barney is a Computerworld senior editor, microcomputing.

end users and not become frustrated when end users appear to be vague about their objectives. The Gewth study noted that 52% of the 475 companies that responded to the survey were using computer-based training programs to supplement the staffing shortfall in the information center.

Information center managers responding to the survey noted that the ready accessibility of computer-based training programs by personal computer users makes them more likely to be used when the need for training arises. Learning is self-paced, and end users can return to work on different aspects of a training program as their knowledge expands, some of the managers surveyed said.

But computer-based training programs are no substitute for a skilled professional who can handle the wide range of questions that end users are likely to raise. The best defense against having to contend with a lack of knowledgeable support personnel may be to plan for it, one information center manager said.

"The Data General difference: the fastest way to turn input into output."

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For more information, send the coupon below. Or call 1-800-DATAGEN. In Canada, call 1-416-823-7830.

NEW PRODUCTS

Software applications packages

MDBS, Inc. has announced Version 2.5 of Knowledgeman/2, its relational database management system.

The product is compatible with fourth-generation decision support and graphics capabilities and now includes report generation, business graphics, text processor and forms painter functions. The product is written in Microsoft Corp. C and comes with an SQL-compliant data dictionary and an on-line tutorial, the company said.

Knowledgeman/2 costs $695.

MDBS, P.O. Box 248, Lafayette, Ind. 47902. 800-344-5832.

A financial management tool for commercial bankers and bank-related organizations has been introduced by Ferguson & Co.

Called **Bankasource**, the microcomputer software system reportedly provides instant access to a current and historical financial database of all Federal Deposit Insurance Corp. insured commercial banks. The system will be updated on a quarterly basis, and applications software is also included for data processing and analysis. An IBM Personal Computer or compatible machine with 640K bytes of random-access memory and a hard disk is required for operation.

Banksource is available at an annual subscription rate of $750 per state or $7,000 for the entire nation.

Ferguson, Suite 640, 1667 K St. N.W., Washington, D.C. 20006. 202-659-8300.

A package designed to assist job estimations and bid preparations has been announced by **Generic Software, Inc.**

The **Generic Estimator** works in conjunction with the company's Generic Cadd software to recalculate any portions of an estimate affected by drawing changes, the vendor said. The user may also prepare several estimates for a job on a what-if basis.

Generic Estimator is priced at less than $500.

Generic Software, 11911 N. Creek Pkwy. S., Bothell, Wash. 98011. 206-487-2233.

Computer Associates International, Inc. has announced the Accpack Easy Start Program, which was designed to aid small business owners in establishing automated bookkeeping systems.

The program includes accounting and payroll modules and has incorporated a disk-based general accounting tutorial provided by Individual Software, Inc. The targeted program is incorporated within the Accpac Easy Quick Start Accounting Pak and runs on the IBM Personal Computer, PC AT, AT, Personal System/2 and compatible systems.

The Accpac Easy Quick Start Accounting Pak carries a price tag of $149.

Computer Associates International, 1240 McKay Drive, San Jose, Calif. 95131. 408-432-1727.

NEW AT COMDEX/FALL '88

The following products were announced at Comdex/Fall '88 in Las Vegas:

Sharp Electronics Corp. introduced two series of laptop computers: the battery-powered Intel Corp. 80286-based PC-5541, with IBM Video Graphics Array emulation and a 40M-byte hard drive; and the PC-4600 series, which is said to feature 640- by 400-pixel illuminated supertwist crystal displays. The systems cost $6,595 and $3,595, respectively.

Sharp Electronics, Sharp Plaza, Mahwah, N.J. 07430. 201-529-9500.

A 24-wire dot matrix printer with four resident fonts was announced by **Star Micronics America, Inc.**

The NX-2400 Multi-Font printer is targeted for word processing, desktop publishing and computer-aided design applications, the vendor said. The unit reportedly prints at 170 char/sec. in draft elite mode and costs $529.

Star Micronics, Suite 3510, 200 Park Ave., New York, N.Y. 10166. 212-986-6770.

Ricoh Corp. displayed two laser printers, each designed with a standard 50-pin external video interface for connection to a specialized controller card in the host computer's expansion slot.

The 6 page/min, 37-pound PC Laser 6000/EX printer is said to produce text and graphics at a 300 dot/in. resolution and has a 400-sheet maximum paper capacity. It costs $1,995.

The PC Laser 15/EX desktop unit prints at 15 page/min and also produces 300 dot/in. text and graphics, the vendor said. Pricing is not available.

Ricoh, 5 Dedrick Place, W. Caldwell, N.J. 07006. 201-882-2000.

An 8M-byte memory board designed for the 16-bit, IBM Personal Computer AT bus market was introduced by **Boca Research, Inc.**

The **Bocaram/AT Plus** is said to offer compatibility with DOS, IBM and Microsoft Corp.'s OS/2, Unix and Xenix operating environments and operates with CPU speeds up to 33 MHz. The board is available in four different versions with prices ranging from $225 to $3,395.

Boca Research, 6401 Congress Ave., Boca Raton, Fla. 407-997-6227.

Canada-based **Ogivar Technologies, Inc.** expanded its presence in the U.S. desktop microcomputer market with the announcement of its System SX386.

The product is based on the Intel Corp. 80386SX microprocessor and incorporates a 32-bit internal architecture and a 16-bit external bus, according to the vendor. Scheduled for U.S. shipment in late January, the system will cost $3,200.

Ogivar Technologies, 7200 Route Transcanadienne, Ville Saint-Laurent, Quebec, Canada. H4T 1A3. 514-737-3340.

A laser printer controller card that incorporates 4M bytes of random-access memory has been announced by **Laser Master Corp.**

Designed to emulate devices such as Varityper's VT 600, the LX6 Professional interface portedly will drive a Hewlett-Packard Co. Series II machine at a resolution of 600 by 300 dot/in. The controller costs $3,995.

Laser Master, 7156 Shady Oak Road, Eden Prairie, Minn. 55344. 612-944-6669.

Commodore Business Machines, Inc. introduced the Amiga 2500, which was designed especially for graphics, animation and video applications, the company said.

The system comes standard with a Motorola, Inc. 68020-based coprocessor card running at a 14.3 MHz, 2M bytes of 32-bit random-access memory and a

Motorola 68881 math coprocessor. The unit also contains seven full-size expansion slots.

The Amiga 2500 costs $4,699.

Commodore, 1200 Wilson Drive, West Chester, Pa. 19380. 215-431-9100.

Dauphin Technology, Inc. unveiled its Dauphin Lappro-386SX machine.

Based on the Intel Corp. 80386SX processor, the unit reportedly operates from any of four different power sources: 110V, 220V, 12V or lighter and battery pack. The unit runs at 16 MHz and includes 1M byte of random-access memory that is expandable to 4M bytes with zero-wait states, the vendor said.

A 40M-byte hard drive configuration costs $4,995.

Dauphin, 1125 E. St. Charles Road, Lombard, Ill. 60148. 312-627-4004.

Mylex Corp. unveiled its MX386 Flash Cache Series. Designed to support Intel Corp.'s AT 32-bit bus architecture, the board can be configured as either 33 or 25 MHz with zero, 32K, 64K or 128K bytes of static-cache random-access memory, the vendor said. It includes one 8-bit, one 16-bit and two 32-bit I/O slots, as well as a 32-bit memory connector.

The MX386 costs $4,000.

Mylex, 47650 Westinghouse Drive, Fremont, Calif. 94539. 415-657-7667.

The Terminal Of The '90s Has Arrived A Bit Early.

Wyse introduces the WY-150. They always said there would be such a terminal "someday". It would have the flexibility and connectivity to operate in virtually any computing environment, while meeting the most exacting ergonomic requirements. And, it would deliver those advantages at an affordable price.

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The WY-150 also sets new ergonomic standards. Its 78 Hz refresh rate eliminates any hint of flicker. Just as overscanning and a bezel that matches the soft, paper white phosphor erase distracting borders. (Amber and green phosphors are also available.) The oversize 10x16 cell makes each crisp character stand out vividly.

The WY-150 is also part of *SystemWyse*. It links effortlessly with Wyse PCs and multi-user platforms to create uniquely

integrated and cost-effective solutions. Everything is designed, manufactured, and tested by Wyse to work together. And it's all backed by the service and support of the world's leading independent terminal maker.*

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DEC leads in CIM fight

The manufacturing sector is the latest battleground on which IBM's Systems Application Architecture (SAA) is going up against Digital Equipment Corp.'s "has it now" enterprise networking strategy. Both are hell-bent on having their computers chosen as primary platforms for computer-integrated manufacturing (CIM). But for the moment, DEC seems to have an advantage.

With a 40% share of the area controller market — the processors that coordinate operations across different areas of the factory — DEC is in a good position to sell its VAX/VMS/Decnet systems to manufacturers as a primary CIM platform, according to Advanced Manufacturing Research (AMR) in Cambridge, Mass.

Hewlett-Packard has a little more than 20% of that market, and IBM is a slow third with less than 10% market share. This puts IBM at a disadvantage in the CIM arena, AMR President Tony Friscia says, because "advanced users are establishing their primary platforms vendors at area-control level for plant integration. DEC is in a strong position because it has portability and networking now." Sixty percent of users surveyed by AMR were "leaning to DEC," he adds.

Until recently, IBM had no integrated platform to put

Uncovering ISDN treasures

Bell Labs finds true-life applications and offers demos for disbelievers

BY ELISABETH HORWITT
CW STAFF

LISLE, Ill. — Users clamoring for real live ISDN applications should keep an eye on Bell Laboratories.

Al Winnicki, a member of the AT&T subsidiary's technical staff, has been haunting industry shows like Locatnet and poring Black Box catalogs in his quest for down-to-earth applications that combine Integrated Services Digital Network's (ISDN) flexible switching capabilities with existing products.

He has already hit pay dirt with IBM Personal Computer-based remote communications packages that, coupled with ISDN, give PC users some of the same capabilities that they can enjoy over a local-area network.

For example, an Intelligent Technologies, Inc. lore tune an AT&T PC into an IBM 3174 cluster controller that can link multiple PCs to an IBM host. Those PCs can be linked directly or via a LAN. But if you equip that same PC with an ISDN board from Teleos Communications, Inc., it can act as a mainframe gateway for PCs at remote sites over ISDN links, Winnicki said.

Advantages

The advantages of ISDN are manifold: An ISDN service provides switched connections on demand, eliminating the expense of permanent leased lines. It generally provides reliable data connections at higher speeds than ordinary analog dial-up lines; and incoming lines from various sites can be concentrated at an AT&T 5ESS digital switch at the nearest carrier's site and then sent over the ISDN Basic Rate Interface (BRI) channel to the mainframe site. This

eliminates the cost of individual dial-up lines over the local loop.

One of the more interesting applications Winnicki has uncovered couples ISDN with PCanywhere from Dynamic Microprocessor Associates, Inc. The software package is said to turn one IBM PC into a host that can be operated remotely by another PC.

The software package from Devicon, Inc., attached to the carrier's AT&T 5ESS switch, can

users' desks can support voice interactions with other members of the group as well as the data connection to a remote PCanywhere host.

Another important goal for Winnicki's group is to get a wide variety of PC-to-PC communications software packages to work over ISDN lines. This involves writing software to intercept calls that might ordinarily go to a PC's RS-232 port and reroute them to the ISDN board,

Collaboration a la ISDN

PCanywhere software and Integrated Services Digital Network allow PC users at remote sites to work together on text or a spreadsheet

CW CHART

set up ISDN connections between remote PCs at different sites and a single PC running PCanywhere. The various users can then collaborate on, for example, a Micropro International Corp. Wordstar document or a Lotus Development Corp. 1-2-3 spreadsheet, with everyone seeing changes made on their own screens.

Of course, they have to communicate verbally to ensure that two or more people do not try to make changes simultaneously. An ISDN provides an advantage here, since the same BRI line to

Winnicki said.

Unfortunately, the little piece of software must be written anew for each vendor's board, given the lack of a complete standard for such products, according to Winnicki. "The terminal adapter boxes are standard"

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- *A networking potpourri at Comdex/Fall '88.* Page 50.

Net-in-a-box adds protocols

BY ELISABETH HORWITT
CW STAFF

NEW YORK — AT&T Network Systems is expected this week to announce an upgraded version of its Datakit, a modular network-in-a-box that is more often used by Bell operating companies to support central office-based local-area network services.

Datakit II Virtual Circuit Switch, as described in a brochure recently distributed to Bell operating companies, will provide the following new features: direct support of IBM host protocols such as SDLC; asynchronous-to-CCITT X.25 protocol conversion; and bridging between Ethernet and AT&T Starlan networks. Datakit II will also support the following networking protocols at an undisclosed future date, the brochure said: Transmission Control Protocol/Internet Protocol; Distributed Data Interface, the fiber-optic LAN standard; and the Integrated Services Digital Network Basic Rate Interface.

The product also provides a low-end, low-cost model that should allow local carriers to deploy central-office LAN services in areas with less traffic, according to one Bell operating company spokesman.

AT&T is set to announce a 200M bit/sec. Datakit next year, a source inside the company said, AT&T also is rumored to be working on a new switch architecture that would continue Datakit with Information Services Network, a similar switch that usually resides on the customer premise.

BIT BLAST

Jupiter supports IBM mid-range

Jupiter Technology, Inc.'s System 1000 family of data communications computers now supports **IBM** mid-range computers, including the System/36 and 38 and the Application System/400. Software emulating IBM's 5250 devices reportedly

allows asynchronous terminals, as well as 5250 clusters, to connect to an IBM mid-range processor via one of Jupiter's systems.

The software pricing ranges from $800 to $1,100 per system.

Separately, **Jupiter** announced support and certification for Telenet, Infonet, Accunet, Tymnet and Defense Data Network X.25 industry standards. Software prices for the CCITT-based X.25 support range from $1,500 to $7,500

per system, Jupiter said.

Progressive Computing, Inc. (PCI) has become Illinois Bell's first commercial user of **Ameritech's** Integrated Digital Service. Both a user and a developer of Integrated Services Digital Network (ISDN) technology, PCI plans to implement a local-area network via ISDN, using its own personal computer-based

ISDN terminal adapter.

The first 1,000 orders made during 1988 for **Performance Technology, Inc.'s** Powerlan network software and installed by the end of January 1989 will reportedly get 90 days of free use (with some restrictions). Registered Version 1.1 buyers will receive Version 1.2 free. Unlimited-user-version buyers will receive an automated backup-and-restore software package free.

ISDN

dardized, but you use different commands to call functions on different boards."

Thus, a package such as Hayes Microcomputer Products, Inc.'s Smartcom III would have to be tweaked to communicate with a Hayes ISDN board instead of a Hayes modem, for example — and then tweaked again to run on an AT&T ISDN board.

Fortunately, board makers are moving to support IBM's Netbios as a de facto standard. Once this happens, any software written for Netbios will be able to work across a variety of ISDN boards, Winnicki said.

Winnicki is also investigating ISDN applications for multitasking workstations such as an IBM Personal System/2 running IBM's OS/2 Extended Edition. Multitasking makes more sophisticated ISDN applications possible, he pointed out.

For example, ICL North America, a subsidiary of International Computers Ltd. in the UK, recently introduced an ISDN workstation that runs a multitasking version of Microsoft Corp.'s MS-DOS.

Specially developed for ICL, MS-DOS 4.1 allocates 640K bits to each task and supports up to 16 simultaneous tasks. The workstation is said to make use of ISDN draft standard V.120 and allows an ISDN BRI to be divided into smaller channels, each supporting a different application.

Multiplication

As a result, users reportedly can have multiple sessions with one or more hosts over the same ISDN link and can display those sessions on different windows of the workstation.

A simpler application would be for the user to send or receive a file over the ISDN link while working on something else at the same time.

The above applications are only examples of what is being demonstrated to customers at Bell Laboratories in the hopes of perking up interest in ISDN services.

It might be worth a flight out to Illinois to check things out.

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against its rivals. Manufacturing companies tend to buy three types of systems from IBM: big mainframes to run business applications such as accounting; smaller mainframes to perform plant control applications such as manufacturing resource planning (MRP); and ruggedized IBM Personal Computers that IBM OEMs to low-end cell controller vendors.

However, the vendor's tendency to use different proprietary operating systems and communications protocols for each of its product lines became a liability when it came to tying it all together to support CIM applications. For example, IBM PC-based cell controllers generally communicate over Sytek's broadband PC Network, while IBM mainframes use SNA.

About a year ago, IBM pulled together its production planning, plant floor, engineering and graphics product lines into the new Application Systems Division. The division's first move on the market was to set SAA loose on the factory floor in the form of a cell controller based on the Personal System/2.

A timely fashion

SAA is a set of communications, user interfaces and application programming interfaces that IBM claims will take care of incompatibility problems across its product lines. PS/2s running OS/2 Extended Edition can communicate in peer-to-peer fashion via LU6.2. However, IBM remains vague about what higher level software will allow them to share information on a record level so that they can manage work flow in a timely fashion.

A future release of Distributed Automation Edition (DAE), IBM's software tool and interface platform for developing CIM applications, will run on VM on a 9370, and it can be assumed that IBM will provide links to its larger plant-control systems via SAA interfaces.

Meanwhile, DEC has been expanding its own platform, with a common database system based on RDB and SQL and a user interface based on Decwindows. The RDB component makes data available to various applications rather than "holding it captive" to one software package, according to DEC CIM applications marketing manager Donald Bell-Irving. DEC is also working with software companies to jointly develop CIM applications using its platform. The first two of these solutions — one developed with Solarno, the other with BBN Software Products Corp. — were announced at this year's Autofact conference.

Allies, both in the software and hardware areas, will play an important part in this battle. At Autofact, IBM spokesmen were clearly eager to dispel their company's image as a lone shark. They proclaimed IBM's eagerness to develop relationships with niche vendors and announced 30 software vendors that had agreed to migrate their programs to DAE.
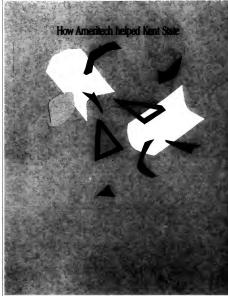
On the other hand, DEC smugly points out that it has been gaining supporters and joint development partners for years while IBM has been marketing its own products. DEC also wins points for providing support of the IBM systems that users are most likely to insist on keeping: mainframes running business and MRP software.

A VAX-based shop floor control system will be able to collect information from an IBM MRP system at regular intervals to provide timely data about routings and work-order status to the shop floor, Bell-Irving says. "Right now MRP typically sends such information down in batch mode," which is too slow, he adds. And shop-floor devices will be able to send notification of completed work orders up to the IBM MRP host via the VAX interface, Bell-Irving says.

So where does this leave IBM? Playing catch-up, it would seem. "From our perspective, DEC has had a platform; IBM's SAA is still a year away," says one MIS manager in charge of CIM implementation.

Horwitt is a Computerworld *senior editor, networking.*

How Ameritech helped Kent State

NEW AT COMDEX/FALL '88

• **Datapoint Corp.** announced its Arcnet Personal Computer Network Services Gateway. The product was developed as an add-on to integrate any IBM Netbios-based personal computer network with a Datapoint Resource Management System network.

The software is priced at $1,000 for a 16-user license.

Datapoint, 9725 Datapoint Drive, San Antonio, Texas 78284. 800-328-2526.

• **Gateway Communications, Inc.** introduced a high-speed workstation Ethernet adapter for the IBM Personal Computer, Personal System/2 and compatible systems.

The G/Ethernet WS maintains a throughput of 75.3K bit/sec. and includes 8K bytes of random-access memory, according to the vendor. The product reportedly adheres to IEEE 802.3 specifications and is compatible with all Novell, Inc. Netware-based Ethernet environments.

G/Ethernet WS is priced at $345.

Gateway Communications, 2941 Alton Ave., Irvine, Calif. 92714. 714-553-1555.

• **Universal Data Systems** announced a full-duplex, 9.6K bit/sec. modem that offers downward compatibility with 1,200 and 2,400 bit/sec. modems and incorporates Microcom Networking Protocol Level 5 error correction and data compression capabilities, the vendor said.

The V.3224 was designed to support both the V.32 and V.22 bis-compatible communication standards.

The unit costs $1,145.

Universal Data Systems, 5000 Bradford Drive, Huntsville, Ala. 35805. 205-721-8000.

• A series of laptop modems designed for Apple Computer, Inc. Macintosh, IBM Micro Channel Architecture and Toshiba Corp. environments were introduced by **Best Data Products, Inc.**

The 2400XMAC is a 2,400 bit/sec. external modem that is compatible with the Macintosh Plus, Mac SE and Mac II models, the vendor said. It costs $279.

The 1,200 bit/sec. **Smart One 1200/PS** and the 2,400 bit/sec. **Smart One 2400/PS** internal modems are targeted for IBM Micro Channel-based Personal System/2 Models 50, 60 and 80 and cost $199 and $299 per unit, respectively.

The firm's first laptop-compatible modems are said to offer compatibility with Toshiba's T3100, T3200 and T5100 PCs. The modems are available in both 1,200 and 2,400 bit/sec. versions. The **T1200** costs $195, and the **T2400** costs $295.

Best Data Products, 5907 Noble Ave., Van Nuys, Calif. 91411. 818-786-2884.

• A software-based network security system was announced by **Rybs Electronics, Inc.**

Running on IBM Personal Computers, PC XTs, ATs, Personal System/2s and compatible systems, Gatekeeper requires users to logon with an identification and password. The program reportedly prevents loading of a local-area network until the user logon has been verified.

Gatekeeper costs $79.

Rybs, 2590 Central Ave., Boulder, Colo. 80301. 303-444-6073.

• A series of serial data buffers were introduced by **Kansai International.**

Designed to permit peripheral sharing and alleviate bottlenecks, the bidirectional **DMB** series buffers can also function as protocol converters, the vendor said. The products are available in 64K-, 256K- and 1M-byte buffering capacities and can support data transmission speeds ranging from 300 to 9K bit/sec.

Prices range from $199 to $629, depending on configuration.

Kansai International, 3555 Voyager St., Fountain Valley, Calif. 90503. 213-542-7626.

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Pinched at the root by bypass, AT&T offshoots push services

BY BRUCE PAGE

AT&T's regional holding companies face a sticky problem. They have inherited pieces of a regulated business that no longer claims the monopolistic hold it once did on customers. And, while they possess more than adequate means to battle for share on an open telecommunications market, the regionals are hampered by regulatory roadblocks, by customer skepticism and, some say, by their own slow responses.

Operating a communications utility is no longer the ticket to guaranteed profits that it used to be. Many former corporate customers are bypassing the regional holding companies and have built their own custom telecommunications networks to gain greater control over the cost, functionality and security of their internal communications. Cost savings can result from purchasing equipment that provides the same type of service as a telephone company connection; additional benefits accrue from depreciation — something telecom services cannot offer.

As one telecom manager at a large diversified services company puts it, "When we consider installing a communications system at our company, we ask ourselves what the advantages are to using the telephone company's system over acquiring our own. For us, it amounts to a lease vs. buy decision."

Another motivating factor in the decision to bypass the holding companies is increased control and self-determination. Custom networks can be configured to meet individual performance requirements. Telephone companies, on the other hand, can be slow to upgrade their facilities. And even when upgrades are made, the standard equipment they must use generally operates at a lower performance level than alternative, -custom-made solutions. By having to address the lowest common denominator among their potential customers, the regionals often miss out on the business of more specialized, and often more profitable, customers.

"The reason you have private networks to begin with is because the telcos have not been able to respond to the needs of corporations," says Martyn Roetter, manager of global practice in the information and telecommunications industries unit at Arthur D. Little in Cambridge, Mass. The only way that the regional holding companies can hope to regain part of that lost business, he says, is by offering customers some of the same capabilities as are found in private networks, but removing all the hassles of constructing and maintaining the networks.

That is, in fact, exactly what the holding companies are now trying to do. Acknowledging that bypass is here to stay, they are formulating and testing a variety of new network services, such as the Integrated Services Digital Network (ISDN), information-service gateways, virtual private networks and metropolitan-area networks (MAN).

The regional holding companies will be fighting on several fronts in their attempts to gain acceptance for these services. They still have skirmishes to win in the area of deregulation. Beyond that, they must confront the widespread perception that bypass is the only way to have a customized network and also win a race against time to get their offerings in place before customers commit to other courses of action.

Some regulatory restrictions that remain from the AT&T divestiture decision may prevent the regional holding companies from adding enough value to their networks to satisfy an increasingly sophisticated set of customers.

For instance, although all of the holding companies are enthusiastic about the possibilities of voice messaging and electronic mail, little progress has been made so far. Pacific Telesis Group and Bell Atlantic Corp. have both filed Comparably Efficient Interconnection plans, which have been conditionally approved by the Federal Communications Commission.

One of the fastest growing areas within the domain of value-added services is transaction services, which combine computer processing with communications services and special-purpose databases. And each of the current prohibitions on the holding companies — long distance, manufacturing and information services — limits their ability to offer effective solutions. In many cases, all they may offer is a simple telecommunications connection, the smallest and least profitable part of the value-added services pie.

Gary Scroggs, manager of network operations at Seafirst

JULIA TALCOTT

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Offshoots

Bank in Seattle, says that the regionals have some chance of winning customers back with enhanced services, but they may be running out of time. "Users have had to become more self-reliant and consequently have had to look for more innovative solutions in the short term to position themselves from a business standpoint," he says. "There are some people who will do nothing until the RBOCs sell them what to do, but many others are getting enhanced services on their own and may have no interest in an RBOC-provided service in the future."

Seafirst Bank fits into that category. The bank is using fast-packet equipment from Stratacom, Inc. in Campbell, Calif., via DS-1 (1.544M bit/sec.) and DS-3 (45M bit/sec.) service leased from Pacific Northwest Bell, a division of US West. General Telephone provides a dial-tone interface between Seafirst's own equipment and the rest of the public network.

Scroggs also wants to be able to control his own schedule, and the regional holding companies are not moving fast enough for Seafirst's purposes. "It may be 10 years before the RBOCs provide ISDN to every endpoint they own," he says. "I can't wait that long."

Some analysts and users blame the regionals for manipulating the regulatory issue and using it as a pretext for delaying costly innovations. Scroggs is among that group. "The RBOCs have moved slowly to force the issue of deregulation and have dangled the carrot of enhanced services in front of the user to perpetuate the need for deregulation," he says.

Not all interested parties are quite as hard on the regionals. Ken Phlips of the New York-based Committee of Corporate Telecommunications Users is willing to give them the benefit of the doubt. "I don't think one can make the case that the RBOCs are deliberately withholding service. You can't evaluate all the RBOCs in one sweep. Some are more responsive than others in applying high technology," Phlips says.
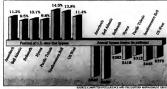
Although it may be late in coming, the regional holding companies are planning an ambitious menu of value-added services designed to capture corporate traffic onto their networks.

Virtual private networks

The Virtual Private Network (VPN) is a type of value-added "intelligent network" service created especially to address the needs of large corporations. The holding companies are starting out from a trailing position in this area. Virtual network services have been offered by the major interexchange carriers for the past several years, beginning with AT&T's Software-Defined Network (SDN) service and followed by similar services from MCI Communications Corp. and U.S. Sprint Communications Co.

In practice, VPNs create "virtual" circuits that may be set up and taken down like normal switched connections but, when in place, appear to be dedicated to the user, just like a leased line. VPNs may be used to transmit voice, data or both.

Transamerica Corp., based in

Location, location, location

SOURCE: COMPUTER INTELLIGENCE AND THE EASTERN MANAGEMENT GROUP / CW CHART

Holding companies choose weapons in battle for market

In the five years since their creation, the regional holding companies have followed markedly different strategies in developing the necessary infrastructure to support enhanced services. The following briefly reviews their progress:

- **Ameritech.** Ameritech lost a greater percentage of its 1987 revenue — 8.8%, or $840 million — to bypass activity than any other holding company. Plans are under way to correct those losses through services such as a 10M-bit central-office-based LAN (CO LAN). Ameritech's current 1M bit/sec. LAN runs faster than the 19.2K bit/sec. speeds common in such systems. The higher speed LAN, however, may not be available for more than a year.

  Also planned are customer-configurable T1 circuits and ONA-enabling technologies such as the Intelligent Network/2 (IN/2) network programming specifications, now under development at Bellcore but originally proposed by Ameritech. Ameritech is also making progress with ISDN implementation.

  "The IN will allow services that have a much shorter life cycle or smaller target market than is currently economically feasible," says Fred Henrich, director of product development at Ameritech Services. "Our problem now is how to mesh this service into the network. It's going to take quite a bit of culture change for us to understand."

  Ameritech's principal development effort so far is its $5 million investment in Inet America, a partnership with Bell Canada and the Telenet data network that will most likely form the core of Ameritech's gateway system.

- **Bell Atlantic Corp.** Bell Atlantic's information services diversification has been among the most promising of all the regionals. An early developer of 976 audiotex gateway services, Bell Atlantic was also the first holding company to offer a local-area packet-switching service in 1986. Today, its Public Data Network offers access to 14 different VANs, and the company is about to introduce switched 56K-bit service as well as a MAN service.

  Bell Atlantic is also upgrading its internal network by providing the CCITT Signaling System #7 (SS7) throughout its serving area. It plans to have 80% of its customers connected to SS7 switching offices by the end of 1990, well ahead of the other holding companies.

- **BellSouth Corp.** BellSouth has also paid a great deal of attention to its core network, which has been upgraded to support a wide array of information services. It reportedly has installed more miles of fiber-optic cable than any other holding company. In addition to opening the first regional gateway service, BellSouth operates an audiotex gateway system that provides a wide variety of Touch-Tone-triggered audio services.

- **Nynex Corp.** Nynex has opened a trial gateway system in Burlington, Vt., with similar systems expected in Boston and New York early next year. It is paying special attention to the potential for network-based voice-recognition technology as an access method to information services.

  Bailey Geselin, vice-president of marketing and technology at Nynex Service Co., sees a great deal of future growth in value-added and transactional

networks for small and medium-size businesses. Smaller companies, he notes, may benefit from special-purpose industry-specific value-added services that would serve as communication links between customers and suppliers such as insurance companies and banks.

- **Pacific Telesis Group (Pactel).** The information services plans of Pactel are being watched with intense interest by the other regionals. Pactel's serving area is among the most progressive, and many national on-line service providers receive nearly half their usage from California customers.

  The company developed a proprietary digital transmission format for information services and tested it early in 1986 under the name Project Victoria, with customers in the San Francisco Bay area. But it also must contend with an enthusiastically regulatory state utility commission, which has delayed introduction of an information services gateway, now planned for mid-1989.

  Pactel will be testing new information services as it rolls out its ISDN services in the next several years. A trial run will eventually join three different California cities — Sunnyvale, San Francisco and San Ramon — with Basic and Primary Rate ISDN channels. Each city is served by a different manufacturer's equipment, which makes this trial an important demonstration of ISDN's capacity for interworking.

- **Southwestern Bell Corp.** Southwestern Bell is one of the most progressive holding companies in the open network architecture (ONA) development battle. In a Computerworld Efficient Interconnection filing that can be perceived

as either visionary or shrewd, Southwestern Bell links its enhanced services trials, particularly information service gateways, with its ability to fulfill FCC-mandated ONA requirements.

Three new business areas in which Southwestern Bell has managed to carve out leading positions — Yellow Pages, mobile communications and equipment sales — all harbor the potential for information services applications, although regulatory relief would be necessary before Southwestern Bell could offer an electronic Yellow Pages service.

Under the long-standing premise that the first fiber to the home will be the only fiber to the home, the company is also launching a residential fiber-optic service trial in Kansas City, Mo., and recently filed a waiver request with the FCC to construct trial voice and data gateway systems in Houston, scheduled to begin in March 1989.

- **US West.** US West has a knack for attracting the big names in telecom as ISDN users. Trials are under way in Phoenix, Denver, Minneapolis and Portland, Ore. The Phoenix ISDN trial serves GTE Communications Systems, Honeywell Bull, Inc. and the Arizona state government. In Denver, AT&T became US West's first ISDN customer.

  Like Pacific Telesis, US West approaches information services with a broader perspective than other holding companies. Its Future Home trial in Highlands Ranch, Colo., combines residential fiber with a host of applications that it is hoped will eventually cost-justify the fiber installation.

BRUCE PAGE

Los Angeles, uses AT&T's SDN service as the basis for Transnet, its corporate telecommunications network. Because of SDN, Transamerica can turn links on or off at different times of the day, adding or subtracting links as necessary, according to Gary Ho, manager of data communications. "We use AT&T's DACS-CCR [Digital Access and Crossconnect System — Customer-Controlled Reconfiguration] facility to reconfigure our network," Ho says. "We call a number in New Jersey, type in our configuration and within a half-hour, the change is made."

Pepsico, Inc., in White Plains, N.Y., uses a virtual private network from U.S. Sprint. Jerry Stevenson, telecommunications manager, as especially pleased with Sprint's VPN billing services and with the economy of operating a corporate network based on VPN services: "We can ask for our bills to be broken down any way we want them to. We get reports by department and by division, and they are very well done. The information jumps out at you."

Challenges to overcome

There are some challenges that will have to be overcome by the regional holding companies in competing with pre-existing services. For example, Arthur D. Little's Roetter says although the holding companies' VPN services "should be very appealing when they are introduced," he adds the caveat that "there are some issues to be resolved in terms of reliability and pricing."

The regional holding companies' reliability record has been called into question because of a May fire in a Hillsdale, Ill., central office [CW, May 16]. Some customers lost service for more than a week. Some companies, therefore, are turning to VPN as a backup to their main private corporate networks.

Nynex Corp., which had tested its Vpath service with a financial customer in Massachusetts during 1987 and early 1988, was turned down on its initial tariff request in that state. (A tariff request is the application that any regional holding company must submit to regulators before it may actually begin service; it contains specific rates and service parameters for the proposed service.)

Nynex has not been deterred by this setback, however. It expects to launch a VPN service in Massachusetts and New York within the next year. Ameritech also plans to launch a VPN service in its operating area in 1989. And, Roetter says, if the regionals can gain the trust of their customers, these VPN services "will be very attractive."

Metro-area networks

Another bright light on the holding company horizon is the metropolitan-area network. A MAN is a high-speed, citywide geographically-dispersed local-area network at the rate of 10M bit/sec., creating a unified, user-transparent network of as much as 50 kilometers in diameter.

In recent years, LANs have become increasingly important as departmental and establishment networks. But before LANs can be effectively integrated as a corporate resource, spanning many sites, some way must be found to connect different LANs together. In their approach to both design and service, the regionals have positioned multisite LANs.

Technically, MANs are based on fiber optics, using a ring topology and the IEEE 802.6 token-passing protocol. Thus, MANs generally are used as an Ethernet interconnection technology. Philosophically, their design is based on the idea that, as points of high traffic concentration, metropolitan areas should be served with intrastate wide-area networks. Not coincidentally, these concepts fit particularly well with current restrictions on long-distance transmission by the holding companies.

Both US West and Nynex have experimented with MANs. 3M Co. used a Northwestern Bell MAN to interconnect several research labs in and around the Minneapolis-St. Paul area while Harvard University used a New England Telephone & Telegraph Co. MAN to connect several academic computing facilities in Boston and Cambridge, Mass.

Nynex and Bell Atlantic plan to introduce commercial 10M bit/sec. MAN services next year. These would be by far the highest bit-rate services ever offered by a regional holding company.

While MANs are promising in terms of technology, regulatory problems may hamper the usefulness of holding company MANs for the customers who really need the service most. Transamerica's Ho, for example, says, "We have a lot of locations spread out through Southern California, but in order for a service to be truly useful, we need it to be available across the continent."

Unless the regionals can coordinate their offerings to make some services such as MANs available the same way in California as they are in New York, the potential inherent in MANs and similar technologies may go largely untapped.

Then again, even if regional holding companies cannot expand the geographical scope of MANs, they may begin to add value to them in other ways. For example, MANs may serve as the basis for value-added services such as electronic data interchange (EDI) and similar services by interconnecting the LANs of different organizations.

EDI is a particularly attractive application for the regionals to offer because a high percentage of business transactions takes place between customers and suppliers in the same Local Access and Transport Area (LATA). Furthermore, such a public platform for advanced intercompany data communications is a perfect application for the holding companies' networking skills.

As Roetter notes, "The RBOCs can

> WHILE MANs are promising in terms of technology, regulatory problems may hamper the usefulness of holding company MANs for the customers who really need the service most.

provide universal interconnection and common interfaces as horizontal services. Third parties can create vertical-market applications on top of these platforms, which makes more sense than their attempting to create multi-market applications themselves, an area in which they've had a checkered history." For example, AT&T's predivestiture value-added services effort, the Net 1000 data network, cost the company more than $1 billion before it was scrapped.

Like metropolitan-area networks, ISDN will provide a platform for the development of advanced information and connectivity services.

Territory expansion

US West covers more states than any other Bell holding company

SOURCE: THE EASTERN MANAGEMENT GROUP OF CHASE

ISDN stands for a technical upgrade to the fundamental elements of the phone network itself. Once installed in holding company networks, ISDN will provide near-universal data access at speeds —
64K bit/sec. or 1.5M bit/sec. — reserved for corporate backbone networks.

The 64K bit/sec. channels of ISDN will offer throughput levels of an order of magnitude greater than current systems. Anthony Cagle, manager of communications product development at Apple Computer, Inc. in Cupertino, Calif., suggests this difference "is not simply a difference in speed but in user perception and feel." Operating at such speeds, on-line services could respond to users in less than a second.

For example, Mickey Komornik, director of network planning at Dun & Bradstreet Corp. in Wilton, Conn., says that ISDN channels can greatly facilitate on-line access to Dun & Bradstreet databases.

Today, 50% of D&B's credit reporting business is done electronically rather than by direct contact with D&B representatives. Komornik expects ISDN to increase that percentage — and with it, D&B's profit margins.

Open Network Architecture (ONA) is

Key differences emerge as siblings pursue varied careers

BY BRUCE PAGE

Ever since their creation in 1984, AT&T's seven regional holding companies have been diversifying into new business areas. At this point, nonregulated businesses contribute between 10% and 12% of the revenues for each of them. Although the impulse to diversify and the rate of return realized are points of commonality, the companies have pursued distinctly individual paths based largely on their individual strengths and weaknesses as regional telephone carriers.

The companies are evenly split between two philosophies of diversification — one liberal, the other conservative. The more aggressive approach rejects the idea of acting like a regulated utility with a local monopoly and substitutes the posture of a communications service organization in a competitive environment.

The conservative approach, on the other hand, treats diversification as a strategy for consolidating a company's core business, namely the telephone service. In this model, unregulated subsidiaries of a regional holding company are expected to contribute to network use, for example, by selling phone systems.

The fullest embodiment of conservatism among the holding companies right now is Ameritech, which, after experiencing difficulties with an earlier, more liberal direction, has decided to pursue a diversification strategy that focuses on keeping the phones ringing.

Chicago-based Ameritech's most visible effort at diversification, its 1986 acquisition of Applied Data Research, Inc. (ADR) for $218 million, was unsuccessful by most accounts. Ameritech recently sold ADR for $170 million to Computer Associates International, Inc. Analysts attribute the sale to difficulties Ameritech had in integrating ADR's mainstream software operations into its mainstream telephone company culture.

The company's 19.9% stake in start-up Cantel, a Canadian cellular telephone service provider, does show promise, although it is too early to tell how that investment will pan out.

In the future, according to spokesman Steve Ford, Ameritech will stick to acquisitions that enhance its traditional network services business.

In a slight variation of the conservative model, a company

such as Southwestern Bell Corp. may diversify into national and international markets without wandering far from its traditional business sector. At Southwestern Bell, diversification has so far been concentrated in three areas: publishing, cellular and paging operations and equipment sales.

The St. Louis-based regional holding company, which has, during the past four years, acquired Mast Advertising & Publishing, Inc., Blake Publishing and New York Yellow Pages, now publishes some

1,100 yellow pages directories in 46 states. Its 1987 acquisition of Metromedia, Inc.'s cellular interests made Southwestern Bell the country's largest provider of mobile communications services.

According to Richard Dietz, director of strategic planning, the same formula is being applied to international markets.

Bellsouth Corp., while a very active and aggressive player in the diversification race, prefers to stick close to its traditional businesses, according to spokeswoman Carlton Horton. Accordingly,

Entering new waters

The regional holding companies are plunging into a variety of new businesses, with Bell Atlantic taking the deepest dive

	Ameritech	Bell Atlantic	Bell South	Nynex	Pacific Telesis	Southwestern Bell	US West
Consulting services	✔	✔	✔	✔	✔	✔	✔
Financial services		✔		✔			✔
Out-of-region cellular paging	✔	✔	✔	✔		✔	✔
Foreign business ventures	✔	✔	✔	✔	✔	✔	✔
Office equipment	✔	✔		✔	✔		✔
Real estate		✔					✔
Procurement and support services	✔	✔		✔			✔

SOURCE: THE EASTERN MANAGEMENT GROUP
CW CHART

MIS under pressure

Fast growth brings changes for Bell info systems groups

BY KATE BULKLEY

For most of the seven regional holding companies, the task of reorganizing their information systems capabilities in the wake of their 1984 divestiture from AT&T has been a formidable and lengthy one. And the job is far from complete.

Five of the holding companies inherited multiple telephone companies, complete with separate information systems capabilities. For them, the trick during the past five years has been figuring out how to coordinate and rationalize these systems to save money and gain efficiencies.

But even the holding company that wound up with only one phone company — Southwestern Bell Corp. in Atlanta — has grappled with how to streamline and upgrade information systems in a competitive environment rife with change.

Continuing effort

At all of the holding companies, plans to streamline phone company MIS groups have been ongoing since divestiture. It has only been within the last two years that some of the companies started setting up centralized organizations to coordinate and standardize functions.

Among the challenges facing executives is adjusting both systems and MIS employees to accommodate both rapidly changing technology and a focus on centralized and streamlined MIS groups.

Increasingly, there is a perception among many MIS executives at these companies that information systems are integrally linked to the overall business strategies of their parent firms.

"I believe that information systems are just like trucks or anything else," says Glen Arnold, president of Ameritech Applied Technologies. "It's a critical asset. I see technology moving us away from information systems organizations being a cost-cutting thing to being a strategic business and investment."

Last month, Chicago-based Ameritech created Ameritech Applied Technologies, an unregulated subsidiary, to consolidate the MIS staffs of its five telephone companies and direct needed technical upgrades to its information systems.

In taking this step, Ameritech followed the lead of Denver-based US West and Bell Atlantic Corp. in Philadelphia, both of which have formed separate organizations within the last 14 months to manage the information systems needs of their respective phone companies.

"Over the years, the phone companies have gone their own ways in terms of information systems," Arnold says. "A lot of our systems are old, so now we're getting ready to modernize."

Ameritech waited five years to pull together an organization for the 3,000 Ameritech information systems employees. Although Arnold says the company had been planning to set up a separate information systems group since divestiture, other projects came first.

Ameritech is in the planning stages of consolidating the system planning and development and equipment acquisitions of

the phone companies. The top priority is solving the maintenance problem with older information systems through training and new equipment acquisition.

Bell Atlantic, which set up a central organization for MIS in January, inherited four phone companies, including the multistate Chesapeake and Potomac Telephone companies, during divestiture. Although the company knew early on that it would centralize the MIS operations, the actual work is just beginning, says Joseph Ambrozy, vice-president of information

systems at Bell Atlantic.

Ambrozy, a 25-year Bell Atlantic veteran, has an ambitious agenda for the new operation, which encompasses 3,600 MIS employees and a $300 million annual information systems budget.

"We are developing plans for standardization of systems and consolidation of data centers toward a more appropriate data-driven architecture for this decade and on," Ambrozy says. "Consolidation seems an appropriate intermediary stage to modernization."

Since January, Bell Atlantic has consolidated its payroll system and other financial systems. It will take from six to eight years to change from a flat-file batch-oriented system to modern relational databases, Ambrozy adds.

The consolidation will likely affect the number of MIS employees because one of Ambrozy's goals is to make the MIS organization smaller. However, he would not specify how many jobs might be cut. "A lot of that will be taken up by reemployment," he says.

US West combined the information systems functions of its three phone companies and its unregulated subsidiaries in September 1987 under Bellevue, Wash.-based Corporate Information Systems.

The 5,000-employee strong Corporate Information Systems has had to orchestrate the regionalization of information systems for US West's 14-state operating area. The transition will take several years more to complete, according to Ron Brouse, director of computing

LANs growing out of control?

Bulkley is a telecommunications reporter at the *Denver Business Journal* in Denver.

and communications planning at Corporate Information Services in Denver.

One example of the difficulty, Brouse says, is the ongoing effort to make systems that support US West's marketing groups conform to the supraregional organizational structure created earlier this year. The reorganization, which divided marketing and service tasks based on product rather than geographical location, meant that MIS had to undertake the creation of a standardized information system from a literal patchwork.

To combat that problem, US West's goal in information systems has been to increase systems connectivity among the new market units created by the reorganization, Brouse says.

Even before divestiture, Atlanta-based Bellsouth Corp. had set up Bellsouth Services, which is the centralized home for information systems services for the company's two phone companies.

Don Daniels, vice-president of financial systems and information systems services at Bellsouth Services, says the company combined the two staffs and eliminated the duplication among the 8,000 MIS employees.

"It took a year of planning before we got going," Daniels says. "Retraining had to take place, but laying off wasn't a problem because we're still in a growth mode." However, he admits that the company plans to cut the number of its 20 data centers in half in the near future. Bellsouth is also at least two years away from centralizing all its systems but has centralized its carrier access billing system and recorded long-distance tracking system for its nine-state area.

Each information system is on the list for centralization, Daniels says. Strategically, the company is working on making all of its information systems more reliable and available 24 hours a day.

Daniels says that his budget for information services has been growing at 10% to 15% per year. *Computerworld* estimates that Bellsouth's MIS budget is $160 million annually in its September Top 100 Most Effective Users of Information Systems list.

At New York-based Nynex Corp., Nynex Service Corp. was set up at divestiture and in 1985 was transferred to joint ownership by Nynex's two companies,

New York Telephone Co. and New England Telephone & Telegraph Co.

Headed by Lax Brydon, a veteran of New York Telephone, Nynex Service develops new systems and runs the information systems needs of the phone companies. Nynex would not disclose a budget for the group, and Brydon declined to discuss the company's plans. A spokesman for the company says its MIS employment has stayed steady since divestiture.

Inheriting only one phone company at divestiture allowed Southwestern Bell to focus less on organizational and more on systems and new technology.

Advantages of simplicity

"We were blessed with the fact that we were one company," says Malcolm Bliss, division manager for long-range information systems planning at Southwestern Bell. "We haven't had to deal with bringing three or four systems together."

Southwestern Bell has 2,800 MIS employees and a budget of about $284 million that has remained steady for the last three years. Bliss says. The company has done some consolidation in response to new technologies, such as the decision to reduce its data centers from seven to four.

Southwestern Bell's Malcolm Bliss

Like the other regional holding companies, Southwestern Bell is also working hard to lift the veil between the customer and network that was created by the presence of a service representative.

One example of this is the installation of kiosks on several college campuses throughout Southwestern Bell's territory. Although still in the testing phase, Bliss says the kiosks, which consist of punch keys and a display terminal, allow students to punch in the day they want their phones hooked up or disconnected, for example, thereby eliminating any contact with a phone representative.

"We didn't need to have customers tied to our computers," he says. "Obviously, the technologies of telephony and information systems are one. I think information systems are integral to the whole operation."

Pacific Telesis inherited two phone companies at divestiture, Pacific Bell and Nevada Bell, but the second company's information systems have always been run by Pacific Bell, says Steve Swanson, division manager for information systems strategic planning at Pacific Bell's Information Systems Organization.

Earlier this year, Pacific Bell hired John Hancock as new vice-president of information systems. Hancock, who originally worked at Wells Fargo & Co., changed Pacific Bell's systems to data-driven methodologies and a layered architecture with standard interfaces.

Swanson says the next five years will be the most challenging for the holding companies, especially now that they have to start thinking about Integrated Services Digital Network (ISDN) and customer demands for more flexibility.

"We all are running up to provide support for ISDN service," Swanson says. "A lot of effort is happening in the ISDN arena." •

Differences

Bellsouth has organized companies in its Bellsouth enterprises group into three business areas: advertising and publishing, mobile systems and communications systems. Each is a leader in its field, with the advertising and publishing division encompassing Bellsouth's traditional Yellow Pages operations as well as acquisitions such as L. M. Berry and Co., a national Yellow Pages advertising sales and publishing agent and Techsouth, Inc., a computer-based publishing services firm.

Bellsouth Mobile Systems operates cellular and paging operations. After acquiring Mobile Communications Corporation of America, Bellsouth is now the nation's second-largest cellular and paging systems operator after Southwestern Bell.

By contrast, Pacific Telesis Group (Pactel) in San Francisco, is ranging far afield with a host of new business activities grouped together in the Pactel companies: Pactel Personal Communications, Pactel Communications Companies, Pacific Telesis International, Pactel Properties, Pretsisys, Inc. and Pactel Finance.

The Personal Communications group encompasses Pactel's cellular and paging services. The Communications group includes several reseller operations. Pactel Properties is Pactel's real estate development arm and manages roughly $350 million in mostly California properties.

Premisys provides maintenance services to small businesses, while Pactel Finance is the company's lease and financing division. Pacific Telesis International markets its network operations and design expertise abroad. US West also has widespread interests. Its subsidiaries include real estate development, cellular and paging service operations, equipment leasing and customer premises equipment sales. In an innovative stroke, it created a subsidiary, Applied Communications, Inc., which leveraged existing expertise in building, managing and operating communications networks.

Applied Communications designs and develops a variety of financial systems, including special-purpose software for automated teller and point-of-sale terminal networks. More than half of all electronic funds transfers worldwide are accomplished using Applied Communications software.

Nynex has channeled its outreach efforts in a different way. Its objective, says Carl Selig, vice-president of marketing, technology and business development at Nynex Information Solutions Group, has been to diversify into businesses that assist its standing in vertical markets.

The acquisition of BIS Group in the UK, AGS Computers, Inc. in Mountainside, N.J., The Data Group Corp. in Bed-

Nynex's Selig

ford, Mass., and Telco Research Corp. in Nashville give Nynex a strong advantage in selling to its traditional base of large customers in the banking, manufacturing, insurance and distribution sectors. Without this vertical market expertise, Selig says, Nynex "can't expect to remain a leading supplier of systems, software and systems integration services."

Nynex Information Solutions acquired some $200 million in business after the AGS buyout and $100 million in business with the purchase of the BIS Group. Today, Information Solutions employs more than 5,000 people in 13 countries around the world.

In the future, Selig says, the software packages and solutions offered by the acquired companies will be integrated more closely with Nynex's own array of basic network services.

Philadelphia-based Bell Atlantic Corp., which leads the holding companies in new business revenues, has directed the majority of its efforts and resources toward transforming itself into a major force in computer maintenance and computer leasing.

Beginning with the 1985 acquisition of Sorbus, Inc., then the largest independent computer maintenance company, Bell Atlantic has accumulated an extensive collection of major computer maintenance firms both here and abroad. The

collection includes Electronic Service Specialists Ltd., a Digital Equipment Corp. maintenance company, and Bell Technical Services, the largest maintenance company in the UK. Bell Atlantic has also acquired maintenance operations in France, Italy, Switzerland, Austria and West Germany and, by some accounts, is the world's largest provider of computer maintenance services.

Leasing leader

In the area of computer leasing, Bell Atlantic has achieved top ranking at the national level with its two operational arms — Bell Atlantic Tricon Leasing and Bell Atlantic Systems Leasing. Tricon offers personal computer and office equipment leasing and purchase financing for small and medium-size businesses. The Systems Leasing division has some $2.7 billion in assets and specializes in larger systems.

As competition strikes harder at their core network services, the regional holding companies hope to find new business areas in which to put down roots. They are assured in pursuit of that goal by possession of two key resources: a monopoly local network and a tremendous cash flow matched by few other companies of similar size.

The most daring will win customer loyalty and longer term strategic advantage by introducing qualitatively new combinations of communications, financing and maintenance services. •

Offshoots

not, in and of itself, a service. It is, however, a design strategy for the provision of enhanced telecommunications services. ONA will define the ground rules for all future information services that are delivered to customers over the AT&T regional holding companies' networks. ONA is, in many ways, the "equal access" rule of enhanced services.

ONA aims to unbundle the elements of traditional telephone network services, to make them available on an ad hoc basis. For instance, large businesses and telecommunications carrier companies need inexpensive, high-capacity communications bandwidth. Today, it is impossible to buy just bandwidth from a holding company; you must also purchase its switching, access and call-processing services. This restriction is one reason many large companies have found such transmission strategies uneconomical and have constructed no-frills networks of their own.

ONA seeks to make raw bandwidth and other network elements available for sale on a case-by-case basis. In terms of enhanced services, this would give competing service firms equal access to the holding companies' network's nuts and bolts that the regionals enjoy.

But today, ONA remains a target architecture rather than a real one. Each of the regional holding companies submitted ONA plans to the FCC last February, and it will be at least another year before any of them has its ONA elements in place. Further, the reality of ONA is likely to be considerably more complex than a simple description of its objective would suggest.

The problem is that the holding companies are unlikely to promote a single way to provide ISDN, MANs, VPNs or even gateway services. This diversity,

brought on by deregulation, is a powerful competitive force in improving network services. But the same diversity can make services impractical to use nationwide except when purchased from a single supplier.

Transamerica's Ho provides an example in discussing his firm's ISDN plans: "We've talked about ISDN internally, but until it's nationwide and transparent, ISDN is of no use to us. In the CCITT X.25 arena, there are different flavors so that one X.25 network is not the same as another X.25 network. I have a feeling that ISDN will be a similar situation."

Gateways

All seven regional holding companies are now developing gateway systems to provide convenient access to a variety of information services, ranging from train and plane schedules to electronic data.

The chief benefits of gateways are access to a wide variety of services, a standard navigational system, uniform access methods and simplified billing that produces a line item for information service charges on a customer's phone bill.

Bellsouth Corp. became the first holding company to field a gateway system when it unveiled Transtext Universal Gateway in September. The Atlanta-based holding company is banking on its system to attract a large number of locally based information providers, because current regulations restrict the regionals' ability to carry information across LATA boundaries.

Bell Atlantic has a gateway trial operating in Pennsylvania, while Nynex has opened a trial system in Burlington, Vt. Pacific Telesis and Southwestern Bell Telephone Co. have announced plans to unveil similar systems in 1989. US West, meanwhile, has contracted with Minitel USA, the New York-based marketing arm of Intelmatique, the French Minitel ad-

ministration, to test market a videotex service sometime in the next year.

Despite this activity by the holding companies, the U.S. market for electronic information services may never develop fully unless the phone companies distribute Minitel-like dumb terminals. According to Joshua Harris, president of Jupiter Communications, a videotex consulting firm in New York, it is inevitable that the

telecos will subsidize the distribution of such terminals to their customers.

Boiling down all the regional holding company activity in enhanced services, three questions emerge. First, are the new services truly useful? Second, are the regionals the right ones to offer them? Third, assuming the services are needed and that the regional holding companies are the right parties to offer them, can they market the services and maintain the trust and goodwill of their customers?

Arthur D. Little's Roetter thinks so, but only to a limited degree. Ameritech's

Returns on the bottom line

Bellsouth outranked its counterparts in 1987 in revenue from directory publishing, equipment leasing and software sales

Revenue
in billions

SOURCE: THE EASTERN MANAGEMENT GROUP
CW CHART

is undifferentiated services to widely applicable market segments," he says.

Some telco sources seem to agree. For example, Casimir Skrzypczak, Nynex's vice-president for Science and Technology, says, "Most telephone company customers only know about half the services that are available to them. And of those they know about, they only use half."

If the holding companies are going to capitalize on the growth of new services, they are going to have to avoid being too late for their increasingly demanding and impatient customers. •

Now you see it . . .

A misrepresented job can lead to programmer dissatisfaction — and turnover

BY JANET RUHL

Managers in MIS may be the unwitting driving away newly hired programmers before they even start.

Industry pollsters usually attribute perennially high levels of programmer job turnover to reasons such as, "Offer of more responsibility," or "Unhappy with position." But today's well-mentioned MIS manager, aware that any member of his expensive, experienced staff may defect at any moment, is still left wondering how on earth to keep wandering programmers satisfied with their jobs.

Keeping programmers happy — indeed, just plain keeping them — is a complex job. Many approaches focus on understanding the programmer personality, because "real programmers" — the inspired ones who do the vital work — tend to be more inwardly directed and less competition-driven than the usual employee. Thus, the kinds of incentives that work for other personnel often fail to motivate programmers or keep them in their jobs.

But there is a much less complex, often overlooked reason why many of today's programmers are dissatisfied. The point never seems to come up on polls, but it is discussed endlessly among programmers themselves — in hushed tones, when management is far, far away.

So what is the big secret? It is simply that, in all too many situations, the job described to a programmer at his interview is not

DAVE CALVER

the job he ends up filling.

How does this cause turnover? Most programmers change jobs for very specific reasons, and they pick a new job looking for features their old job could not offer. Yet hiring managers usually are looking for people whose experience in their previous jobs is exactly what the new job requires. Having located such a person, all too often they attempt to get him to take their job by making it sound like the step up they suspect he is looking for, even if it is not.

So the programmer quits his old job and begins the new one, expecting to take on different and interesting tasks. When he finds that he has actually taken a job that is substantially the same — or worse — than the one he left behind, he may feel that he has been bornswoggled.

At this point, if he is like most workers, he feels that he must stay on the job for a year in order to keep his resume from looking like Swiss cheese. But he will likely start reading the Sunday classifieds, calling headhunters

to keep up with the local market and chatting up his friends in other companies, trying to find that next job — the one that will really offer what the new job was supposed to offer.

Thus, the MIS manager who promised the programmer a job he was not able to deliver in effect created his own case of job turnover. Many in MIS might rightfully point out that dishonesty in the job-hunting situation is not the monopoly of hiring managers. After all, don't job applicants sometimes lie about

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- **How does your shop compare with others?**
- **Promises, promises**
- **Let applicants meet would-be co-workers**

Ruhl is a Windsor, Conn.-based programmer/consultant who has written *The Programmer's Survival Guide: Career Strategies for Computer Professionals*, recently published by Yourdon Books.

their skills, previous responsibilities and even their dates of employment? Indeed, stretching the truth would appear to be part and parcel of job hunting.

There is some truth to this characterization. But the hiring manager and the job applicant must make a good-faith effort to figure out what is really going on. But there is an inherent inequality between the abilities of the hiring manager and those of the job applicant to determine the truth behind the interview situation.

Managers seeking to verify applicants' claims have many tools to assist them, often including whole personnel departments. MIS personnel can check references and dates of employment, and they can determine the applicant's skills by quizzing him on technical topics.

On the other hand, job applicants have far fewer resources to draw upon when attempting to determine the honesty of the interviewer. They work alone or with beltdhunters who — although they try to appear as advisors to the job hunter — are, of course, paid agents of the hiring firm.

Manager dominates

Applicants cannot get the would-be employers to fill out forms. There is nothing on paper to confirm the promises made in a good-faith effort. And the hiring manager often dominates the interview, backed by all the power and prestige of his corporation. The meeting takes place on his turf and follows his agenda.

In addition, most people being interviewed for a job are trying so hard to make a favorable impression that they find it difficult to ask the penetrating questions necessary to determine the real facts about the position. While common sense would suggest asking the hiring manager about the reality behind the job, most people sitting in a sleek corporate headquarters office and dressed in their most impressive, and sometimes most uncomfortable, interview suit do not have the presence of mind to do so.

There is still another problem that programmers seeking a new job encounter. While interviewing managers can get a good look at a potential employee and can talk to him to determine what he might be like, the applicant almost never gets to meet the people with whom he will actually be working. Therefore, he is not able to get a feel for what his new department is truly like and what his co-workers actually do.

In almost every DP interview, the applicant talks only to managers. Often the bulk of his time is spent with second- and third-line managers with whom, once hired, he will have no contact at all. The applicant who enjoyed a sparkling meeting of the minds with a bright project man-

ager often finds that the programmers he must work with daily have little in common with their distant boss.

So why don't hiring managers tell the truth? Are they just plain sneaky? Is it worth their while to lure in unsuspecting programmers to rotten jobs even though they will only stay for a few months to a year? Of course not.

A few managers may decide that such recruiting methods will fill jobs nobody else will touch, at least temporarily. However, in the vast majority of situations in which programmers end up feel-

ing bamboozled and managers find themselves filling the same job over and over again, the approach is more benign and less intentional than it seems.

By looking at the most common "deceptions" that managers practice and then examining more closely why they occur, we will be able to suggest some simple but effective measures to help managers fill programming positions for keeps.

As many programmers see it, the worst deception that they encounter in job hunting is the promise of exposure and training in hot, marketable software skills. Software knowledge

translates directly into future income, and programmers know it.

Most ask for experienced programmers are ridiculously software-specific. The fact is, a truly experienced professional with three to five years of experience should be able to pick up any piece of software and be productive in it in no more than a month — and often far less. Still, programmers are often desperate to pick up experience in areas like CICS, DB2, IMS, SQL, IDMS or Focus — afraid that if they do not, their skills will become obsolete and they, in turn, will become unemployable.

Managers hiring these professionals may promise that they will work on these hot packages when, in truth, they will not.

For example, programmers who want to learn CICS may be told that they are going to be working with CICS, only to learn that their sole contact will be using ICCF — an editor that is a CICS application — to update DOS batch tape jobs.

Sometimes, even if the software in question really is being used in the department, the new programmer may discover that only experienced programmers who have worked several years on the project get to use it.

If a programmer's main motivation for quitting a job is fear of taking the edge off his skills, putting him into a job that stifles him further is asking for turnover.

Another issue that programmers often complain about is in the area of leadership opportunities. Most programmers say they believe that if their salary is to continue to rise, they must

move out of programming into so-called leadership positions. Thus, as those with experience get sucked into lower and middle management jobs, the bulk of all programming ends up being performed by people with less than five years of experience.

Nevertheless, in most companies programmers have been trained to believe that if they remain "just a programmer" they have somehow failed. This leaves a certain percentage open to being lured into any job that promises them the opportunity to supervise others.

"Team leader"

Programmers are often offered jobs with fancy titles like "systems designer" or "technical leader," only to find that they are still just humble programmer analysts. Or else a programmer may be told that he is one of three "team leaders" — in a department of nine programmers — or that somehow the budget was never approved to have his subordinates and his "team" turns out to be him.

The most common deception job-seeking programmers face involves the thorny question of where a project falls on the near-mythical "project development life cycle." College systems analysis text books have given most programmers the erroneous idea that there is such a thing as "pure development" in the real world.

Believing that somewhere programmers actually design systems from scratch instead of having to jimmy a new function into existing, Byzantine constellations of programming function,

some job seekers are easily charmed into projects advertised as "development" as opposed to "maintenance."

Most of the programmers I have worked with have never been offered a maintenance job, nor have I. The development jobs programmers get, however, generally involve systems with hundreds of modules of existing code, and the work consists of fixing bugs and adding small new functions to these existing systems. These tasks are clearly different from the work of maintenance programmers — who fix bugs and add small new functions to existing systems.

While there very well may be "pure development" projects out there, they generally involve a small number of senior programmers who are intimately familiar with the company's way of doing business. Outsiders are usually brought in — if at all — only after the overall design is complete and has been signed off, when their more generic skills are useful. Nevertheless, managers continue to describe 99% of all open positions as "development" and "exciting new systems" no matter what the job really entails.

Why the deception?

What is the source of these hiring abuses? Unfortunately, many MIS managers seem convinced that "no one would take this job if I described it honestly." If a job has no software bells and whistles to offer and involves "routine maintenance" and little chance to make it up into the reaches of project management, hiring managers assume that no

Before you expand, see who's

one in his right mind would take it.

But this is not necessarily true. Such a job might not attract a programmer concerned with upgrading his software skills, nor would it appeal to one wanting to become a chief information officer. But surprisingly, such programmers are rarer than MIS managers think.

In truth, the so-called "lackluster" job might serve well appeal to a great number of competent programmers. It might attract, for example, a programmer who just enjoys doing maintenance. There are a surprising number of these people; they just tend to be very quiet about their enthusiasm.

A maintenance job can be particularly attractive to a programmer who prefers working on his own, attending very few meetings and programming a system that is permickety enough to offer a lot of opportunities for brilliant debugging.

A job with "unexciting" software might also be appealing to someone who prefers programs he is already comfortable with, someone who finds the idea of having to master whole new technologies every three years depressing. Such a person might, for example, be an older, experienced programmer who has learned enough "hot new software" over the years to have lost its thrill somewhere along the way.

Another reason hiring managers may inadvertently give a programming applicant a faulty picture of a job is that they are too high in the management hierarchy to have a clear idea of

what the job really entails. Often the interview is conducted almost entirely by a second-level manager, and the person who will actually supervise the programmer is given only a few minutes with him.

Upbeat reports

The problem here is that project-level staff usually have a very different view of what goes on in the trenches of MIS than the people doing the actual work have. For starters, in reports on the department's work, the manager's subordinates may gloss over the boring aspects of what is going on there. These upbeat updates usually highlight what is impressive, particularly any new productivity-enhancing software that is being used or an exciting new function that has been added to the system.

Sometimes the interviewing managers will have to admit to themselves that they have no idea what new hires will do. This scenario is most apt to occur when a department suddenly is given the go-ahead to increase its head count after a long hiring freeze.

Many managers in this situation want to get out and hire before their upper management has a chance to change its mind. While they know that a lot of work has piled up, often they wait to see whom they can recruit before divvying up the work to the newcomers.

There is a good way to avoid the kind of disappointment that comes from having high-level interviewers misrepresent an overall a position. In addition to interviewing with management,

let a candidate meet with his potential co-workers — once he is considered a likely prospect.

This suggestion, of course, is heresy. It is almost unheard of to let a potential hire spend time with the rank and file before he is hired. God only knows what they might tell the applicant!

However, whatever they could tell the applicant before he is hired, they most certainly will tell him as soon as he starts the new job. If what they have to say strikes him as appalling, he just may become another case of job turnover waiting to happen.

In reality, it is not likely that the departmental programmers will confide terrible dark secrets to the potential hire. What they will do is he themselves, and by doing so, the potential employee will get a chance to quickly determine whether they are the kind of people who enjoy the same things — in the workplace, at least — as he does. By allowing him to meet his potential co-workers in a more relaxed setting, the hiring manager allows the prospective employee to choose for himself.

Certainly, by following a strategy like this you may lose the occasional highly attractive prospect who might have taken the job if he had not been allowed to delve more deeply into what was involved. But by the same token, when you finally get an applicant who takes the job after having met and spent time with his co-workers-to-be, you will probably get an employee who will stay and prove a real asset to the department.

Yet another reason that people are misrepresented to would-be

hires is that the people who are trying to fill them have unrealistic ideas about where the work fits into the huge spectrum of programming jobs.

What many programmers would consider to be routine maintenance jobs may be presented as dynamic development opportunities because the people running these projects — having had limited experience outside of their own company and its DP shop — really believe that they are offering state-of-the-art development opportunities.

MIS parochialism

In this case, the problem is parochialism. Too many MIS managers are not aware of the variety of programming environments that exist in the world outside their own company. Even more important, many may be unaware of the degree to which programmers control their own work in other installations.

For example, a programmer whose one year of experience includes writing his own specifica-

I T IS ALMOST UNHEARD OF to let a potential hire spend time with the rank and file before he is hired.

tions, writing his own JCL, meeting with users and throwing together a tool or two for the department will not stay very long if — on the basis of having "one year of experience" — he is hired into a shop in which his en-

tire job is to update tables at the behest of a systems analyst.

Similarly, a programmer whose four years of experience consists of working on a single set of programs in one application area in a highly controlled environment, in which priorities were always set from above, may have a hard time adapting to a highly autonomous environment, in which he is expected to take responsibility for a technically sophisticated but poorly documented system. In fact, he may perform so badly that the hiring manager may conclude that he must have lied about having had four years of experience.

One way to eliminate this confusion is to meet people outside of your own company to try to get a feeling for the range of programming projects that take place elsewhere. This activity may be humbling, but it is necessary if you are to understand from where your applicants are coming and to avoid unintentionally mistreating people about what your job can offer.

While your system may seem sophisticated to you, most of its complexity may lie in the way that it handles the details of your business. The programming involved may actually be fairly basic and use techniques perfected 10, or even 15, years ago — like CICS data entry and update — which by no stretch of the imagination make it state of the art today. Accepting this — and accepting that there are still plenty of people whose backgrounds would attract them to this system anyway — prevents you from overselling your job to an overqualified candidate.

Of course, a harried MIS manager would love to hire a new employee who is able to step into a job already knowing everything he needs to know from Day 1 — someone whose last job was exactly like the one he is offering.

Fortunately, in almost every case, the best person to fill a job is not someone who is already doing the same thing, but someone from an environment in which programmers have similar technical skills and levels of responsibility and for whom your job represents a small but visible step up — in either responsibility, technical knowledge or both.

This person does not need to be misled to take a job. While you may have to spend a little time and money on training at the outset, in return, you should have a satisfied new programmer who got what he expected when he took the job. Because you dealt with him with integrity in the interviewing phase, you are more likely to have hired a person who will, in return, treat you and your job with respect. ∎

MANAGEMENT

IS can play leading role

Those who have been watching the television miniseries (msuseries can't possibly refer to a 30-hour movie) *War and Remembrance* probably noticed that IBM and Xerox's advertising has touted the companies' work at making personal computers easy to use for the physically impaired.

The commercials, as well as a recent *Computerworld* feature article on computers for the handicapped [CW, Oct. 3] raise two thoughts.

First (on a lighter note): If companies like IBM can make PCs that are easy to use for the handicapped, why can't they make computers that are easy to use for everyone else?

Second: Advances in technology and the dynamics of the information systems world — such as organizational shifts and demands for new skills relating to new languages and end-user computing — position IS to take a leadership role in hiring handicapped workers.

In addition, the dynamics of IS should help other underused groups of workers such as women and ethnic minorities get ahead in IS future than in more stable arenas of a business.

Nobody can offer the dumb argument that a woman or a handicapped applicant can't handle the physical work when

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Handheld PCs food for thought

Frito-Lay's strategy gains praise, aims higher

BY JAMES CONNOLLY
CW STAFF

PLANO, Texas — The front-end portion of its strategy has won praise for Frito-Lay, Inc. The snack food manufacturer's 10,000 handheld computers that cut expenses and boosted sales.

But even as the company and Vice-President for Management Services Charles Feld were accepting awards for their competitive use of information technology, Frito-Lay was focusing its attention on the back end of the sales system. The information systems group is developing ways to use more efficiently the information that is uploaded from those handheld computers to a Dallas-area data center.

However, Feld emphasized in

a recent interview that the handheld computer is merely the foundation for another three phases of a strategy that involves electronic data interchange (EDI), a data warehouse and a decision-support system.

"The handheld computer project pretty well paid for itself through things like savings on paperwork. It's like the benefits supermarkets realized through checkout scanners," Feld said, noting that handheld computers, like scanners, gave early users a brief competitive edge but are becoming basic for his industry.

For two years, sales people have carried the handheld computers into stores, keyed in orders, delivered chips and other products, printed out invoices and connected the computer to a modem to upload sales informa-

Feld surrounded by munchies

tion to host and download information such as price changes. The company estimated its an-

nual savings at $20 million.

The first phase of the strategy is to help the food industry drive forward during the next five years with EDI, now that the cost and support involved have been reduced by personal computer improvements, according to Feld. Frito-Lay and the grocery chains can reduce paperwork and smooth the delivery and billing processes by using handheld computers, store PCs, host systems and networks to run EDI applications.

The results of the second and third phases of Frito-Lay's strategy may be a set of systems that feature unattended PC operation, a data warehouse drawing data from diverse systems and a decision-support system, which draws on the data

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Pitney Bowes' Billings puts IS in users' reach

BY ELISABETH HORWITT
CW STAFF

George Billings' checkered career has taken him from his days as an economic major at Dartmouth College through the worlds of financial analysis, software engineering and computer operations, to his present position as manager of a 185-node network for one of the divisions at Pitney Bowes, Inc.

At first glance, Billings' rapid succession of job titles seems to be a classic case of being in the right place at the right time. Major jumps in his career path at Pitney Bowes closely corre-

sponded to turning points in his organization's use of computer technology.

But Billings did not just take advantage of those developments — he helped bring them about. The changes have served to liberate computer power from the information systems preserve and put it in the hands of users.

Billings' first major move was to introduce financial analysts to the joys of automated spreadsheets. When he joined the Stamford, Conn.-based business equipment company's financial analysis department in March 1967, analysis was primarily a matter of gigan-

tic spreadsheets that were tabulated on paper with the help of erasers and old-fashioned calculators, he recalls. Simple what-if analyses became major projects.

Billings got the idea of computer-based analysis after taking classes in Fortran that were offered by the engineering department. The innovation increased his department's productivity significantly, he says.

While Billings moved up through the ranks as a financial manager — at one point he reviewed pricing policies for corporate Pitney Bowes — he was also developing programs to help analysts in their work.

In August 1975, when he became manager of financial modeling, he ran into a classic conflict between users and IS managers. Financial analysts wanted to perform ad hoc cal-

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PROFILE
George Billings

Position: Manager, Network Computing Services, Corporate Engineering and Technology Division, Pitney Bowes, Inc.

Mission: To ensure that users get the computer tools and power they need.

National Car Rental picks up Livingston

National Car Rental has hired software specialist **Jack Livingston** as chief information officer.

In the newly created position, he is responsible for strategic planning, coordination and management of all data processing and data communication facilities at National.

Livingston previously worked as a data processing consultant to National through DLA Associates, a software consulting firm at which he served as vice-president of operations. He is a

retired New York Police Department sergeant.

National executives also announced two new vice-presidents: **Michael Accurso** will be vice-president of information services, and **David Ackerman** has been promoted from vice-president to vice-president of telecommunications.

John C. Clegg has been elected vice-president of information services at The Standard Products Co., a Cleveland-based man-

ufacturer of rubber and plastic parts for the automotive industry in the Cleveland region.

In his new job, Clegg will function as the company's CIO. Clegg has worked at Standard Products since 1982.

He is a graduate of Manhattan College in New York and studied at the graduate level at the University of Detroit.

Richard Starr has been named vice-president of information services at Reda, a subsidiary of Camco, Inc., in Bartlesville,

Okla. He has been with the company since 1975. Prior to that, Starr worked at Star Manufacturing Co. in Oklahoma City.

As vice-president at the manufacturer of electric submergible pumping systems in the petroleum industry, Starr will manage a new business start-up project for manufacturing systems products.

Previously, he has been responsible for major start-up and expansion programs involving manufacturing systems.

Starr holds a bachelor's degree and an MBA from Oklahoma City University.

The board of directors at BBDO

New York recently named **Damian Pezzano** the senior vice-president and director of the computer systems department.

Pezzano joined BBDO, a division of BBDO Worldwide, Inc., in 1980 as a senior applications analyst in the research department. He left the firm in 1981 but returned in 1984 as associate director of marketing sciences. The following year, he was named vice-president.

In September 1986, the Fordham University graduate became director of the newly created computer systems department, which is responsible for all computer systems of BBDO Worldwide.

"**H**e was about to spend
millions on a system that could
become obsolete tomorrow.
Ulcer material.
I gave him some insurance."

–Carol McLarty, AT&T Branch Manager

"**H**e was redesigning the company's information network. Mainframes and business computers, phone systems, data communications equipment, the whole shebang. And he was justifiably concerned.

What if the system that was perfect for his company today couldn't adapt to new technologies in the future? What if it all became obsolete in five years? It could happen.

I told him if he used AT&T's open-ended approach, it wouldn't happen.

By using AT&T as a strategic business planner and by subscribing to AT&T's system of open architecture, he could customize his information system at his own pace. He could buy just the equipment and services he needed today and have the flexibility to adapt for the future as his business grew and his needs changed.

Other vendors say they have connectivity and flexibility, but it's only within their own system. AT&T offers it from one system to another.

Whether you use our equipment or someone else's.

Since our approach is communications-based, we're able to give you greater control over your communications by putting the power of the AT&T Network into your own hands. For instance, with an AT&T PBX and departmental computer capabilities, you can free your mainframes from managing communications and let them do the job they were meant to do.

But, most important, AT&T's open-ended solutions help protect your investment, which will enable you to add new equipment as new technologies are developed, without scrapping all the equipment you already have.

Partnering with us now can provide you systems with the future built in. That's the best insurance anyone could have."

For more information about AT&T's open-ended solutions, contact your AT&T Account Executive or call **1 800 247-1212**.

AT&T
The right choice.

Handheld PCs

warehouse and local PC databases that can be updated remotely.

The second phase is to integrate the sales data into all operational systems and to build the data warehouse. Feld said the company is deep into the effort now, but that work needs to be done in areas such as production forecasting based on the data from the handheld computers. Such forecasting may require elements of artificial intelligence and tighter links between databases on IBM 3090 hosts and the manufacturing group's Digital Equipment Corp. VAXes.

The third phase may mean replace-

ment of about 200 IBM 8130 mid-range processors running IBM DPPX, primarily in distribution centers.

"We got a real deal on them," said Bill Franks, Frito-Lay's group manager of computer technology, noting that Frito-Lay bought the 8130s 2½ years ago at about the time IBM stopped enhancing the doomed 8100 family. "Actually, they work quite well. We put them in basically as black boxes for store-and-forward to our 3090. It's not like we need them for a lot of traditional DP applications.

Frito-Lay plans to feed information from the handheld computers and the operational systems into the data warehouse and to draw on that information through Comshare, Inc.'s Commander EIS. The basic component of that third-

phase plan is in place now, providing more than 1,000 district managers with reports on their route sales people.

"This is pretty much an immediate feedback on how their routes are performing. They can tell things like whether a guy is calling on the people he is supposed to be calling on," Feld said. However, the current output is a series of paper reports that a district manager takes in hand to meetings with sales people.

The next steps will be to develop reports for regional managers and icon-driven decision-support tools for executives such as division managers and plant managers. The company hopes to have that system ready by the end of 1989. Frito-Lay will use Commander to customize reports in varying degrees of detail

and by user-selected criteria. Part of the effort is to build a bridge to IBM's Professional Office System (Profs) for word-processing and electronic mail.

Feld said that while Frito-Lay is currently using products such as Commander and Profs, the company has not locked itself into those particular products but chose them in hope they will prove to be close to standards. The key products shape up as Commander, OS/2 Extended Edition and IBM's DB2, Systems Network Architecture (SNA) and Token-Ring.

One of the hurdles that Frito-Lay faces is unattended operations at the user level, noted Jack A. Sprague, Frito-Lay's consulting systems analyst. Sprague said the company leans toward using OS/2 Extended basically because its multitasking features will let users log off their systems at night but still get database updates from the host.

Sprague said that while Frito-Lay is developing its own integration scheme because off-the-shelf products either assume a remote PC is attended or require an hour or so of work for any significant remote control operation such as downloads and backups.

Feld said he is surprised by the number of IS managers who are uninterested in such remote operations. He also said of the distributed nature of the database: "The good news is that if a clerk makes one change in one price, it flows out to all of the systems. The bad news is that if someone makes one mistake, it flows just as easily."

Connolly
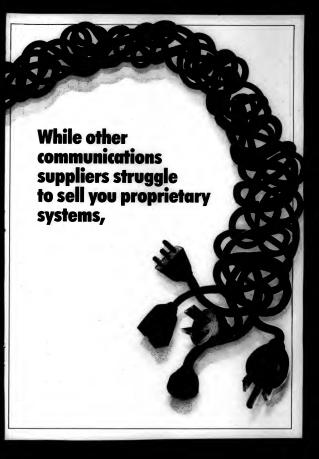
IS seldom involves heavy lifting. Further, nobody can say a minority person or a handicapped applicant doesn't have the technical skills needed for the IS of the 1990s when nobody really knows which skills — other than communication skills and a business sense — will be useful in 1992.

The IS group is almost any company is undergoing massive changes, with old technology flying out the window along with old rules and procedures, leaving new opportunities for new jobs. The time has never been better for IS directors to unleash the brainpower of people whose legs or eyes have failed them. Even if it means waiving rules against telecommuting or spending an extra few thousand dollars for special computer equipment, it is worth breaking rules and spending money to get good workers.

Of course, all departments should make the most of all types of workers. However, just as charity begins at home, IS executives must remember that open-minded hiring begins at home. The IS executives cannot force the legal department or sales director to hire the handicapped or dump their other biases, but IS directors can ensure that they give the handicapped a fair shake themselves.

IS can also set an example for other departments and use available technology to prove what physically impaired workers who are willing and capable can contribute to an organization. Those workers want a fair chance, and IS has the opportunity to give it to them.

Connolly is Computerworld's senior editor, management.

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Alcatel quietly developed the way

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Software-driven for complete compatibility, Alcatel's technology lets you easily connect the systems you already have, putting incompatible systems on speaking terms.

It also gives you an entirely flexible and open, multi-vendor ISDN solution at the same time. One that will open your options and remain open. Even when others close off. The Universal Link protects you by adapting to shifting standards and avoiding the uncertain futures of the systems it supports.

The Universal Link is a safe, "future-proof" strategy.

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You see, since 1978, Alcatel has driven ISDN development with a single vision: perfect the technology as an open interface. One that can give you virtually unlimited choices in combining voice, data, text and image equipment from a variety of vendors, all on one system.

Over the years we dedicated more than 3000 scientists and technicians to building that vision. In fact, no one

has as much experience in ISDN field trials as Alcatel.

Now, our field-proven ISDN-based communications systems are running in a myriad of applications worldwide. The Alcatel 4000 PBX is considered to be the most advanced ISDN communications system in the world.

Why Alcatel?

Why not one of the others?

Size, experience, commitment and global resources.

Alcatel is quite simply the world's largest manufacturer of communications equipment and the largest international supplier of public network equipment. We make and install more phones around the world than anyone.

With over a century of communications experience, 140,000 employ-

Pitney Bowes

ries of financial databases, but when they asked for programmers to write the code, the reply was, "Sure, you'll have it in about 2½ years."

The IS group just could not understand the need for quick and dirty programs that would be scrapped within the month, Billings recalls.

His solution was far the department to do its own ad hoc analysis using Fortran and Foresight, and a mainly mainframe-based spreadsheet from Compro Financial Systems, Inc.

The next turning point in Billings' career came in 1984, when he became manager of computer operations for the Corporate Engineering and Technology Division. He and two other engineers were supposed to devote half their time to engineering projects and half to maintaining the division's Digital Equipment Corp. VAX computer. However, both of Billings' colleagues bowed out of systems maintenance within six months. "So I said to myself, 'Forget engineering, you're in operations.'"

When Billings took over, the division had a VAX 11/750 and "the beginnings of a PC population." His department was somewhat of an orphan in the division, getting its funding only after engineering projects took what they needed, Billings says.

Pushing the limits

But shortly after his arrival, use of computerized analysis programs such as SAS Institute, Inc.'s SAS/Graph, took off, stretching that one VAX 11/750 to its limits. By 1986, so many engineers were on the system that the VAX could not handle the overload. "If you got up from your terminal for just a few minutes, the person next to you would sabotage your program to get your CPU time — I'm not kidding," Billings laughs.

Billings complained to management that the division's exploding user demands had gotten beyond a single VAX. Management was willing to listen because the applications running on the overburdened VAX were crucial to the company's competitive strategy, according to Billings.

A task force was formed and an independent consulting company was hired to address the problem. Billings and the consultant came up with the same solution: an Ethernet local-area network linking a variety of vendors' systems, which would allow the division to add computer resources "one 32-bit CPU at a time, instead of getting larger and larger central computers." The same network would provide communications and resource sharing among various pockets of users, who had everything from IBM Personal Computers to AT&T 382 Unix-based computers.

Billings now oversees two Ethernet LANs that are one mile apart and are connected by a fiber-optic link. The components, 235-user, 185-node network connects Macintoshes, Apple Computer, Inc. Macintoshes, personal computers and a variety of Unix-based systems, through DEC's Decnet and Transmission Control Protocol/Internet Protocol. The division started building the network in 1986, with Billings heading the operation as manager of network computing services.

"Where did I get the networking ex-

pertise? I don't know," Billings shrugs. "I learned a lot from vendors' presentations, and I read a lot. Maybe it's intuition; maybe my background. I came into this as a user, with specific needs that do not fit into general-purpose computers." In contrast, MIS managers with more formal backgrounds may be less willing to look outside their realm of expertise for solutions, he says.

Billings' background as a financial analyst shows in his management style, according to David Fragicomo, who works under him as network manager. "He's a stickler for pennies; George and paperwork go hand in hand. He drives himself nuts trying to keep track of everything." Right now, Fragicomo is collecting numbers about network throughput and util-

ization. "So George can control it and make future plans."

Being a stickler may have a lot to do with Billings' ability to make his superiors listen to his demands, Fragicomo says. "He uses numbers left and right: statistics, CPU utilization." Fortunately, Billings' boss is also a statistician.

Getting away

Just the same, Billings regularly feels the need to escape from all the numbers and "all of those computers." His refuge is a house he bought some years ago in a private area of Norwalk, Conn. Divorced, he lives there alone and enjoys "turning off the stereo and television set and become quiet and centered." He speaks sadly of a highway project that gutted the woods

around his house. "I see a lot more deer now, because their usual places are gone."

Yet Billings is far from being a hermit or a misanthrope. He says he likes his job because "it involves so much dealing with people — my own staff, users and vendors. As a financial analyst or software engineer, I worked within four walls."

Billings wears a United Way pin on his jacket — he has been a co-chairman of the organization's industrial division for six years. "We live in a very complicated world, where people need help and the government has pulled out funding. I find this work very personally satisfying. It's important to be involved in the community one way or another, and I don't have much time."

INDUSTRY INSIGHT

Clinton Wilder

Sanctuary violated

> *"The computer industry should remain relatively insulated from the activities of corporate raiders and conglomerate builders."*
> Computerworld
> Jan. 11, 1988

OK, we were wrong.

Even as the Philip Morrises and Kohlberg Kravis Robertses of the world were plundering all around us, we held firm to the belief that computer technology was a safe haven from the hostile takeover. Sure, we've had our Daisy Systems-Cadnetix skirmishes, our Telxon-MSI Data go-rounds and our Computer Associates forays, but the billion-dollar, stock market-shaking tender offer was still something that happened in all those other industries.

Even when Kohlberg Kravis bought a small stake in Control Data, things stayed quiet. Even Asher Edelman, the only noted financial raider to invade high-tech, has gone off in search of greener (literally) pastures this year after his failed 1987 bid for Telex.

Cover yourself

But the calm was shattered last week when New York financier Bennett LeBow, the largest shareholder of MAI Basic Four, dropped his $970 million tender offer bomb on Prime. If LeBow pulls this one off, it will convey one message to CEOs throughout the computer industry: Watch your behind.

Ahh, you say, isn't this the very same Prime that played the hostile takeover game itself less than 12 months ago to buy Computervision? Isn't what's good for the goose good for the gander?

Well, there's a big difference. Prime, Daisy, Telxon, Sterling Software and Burroughs (as well as DCA and CA, unsuccessfully) all launched their tender offers with the specific strategic goal of increased market share in their respective industries. In most cases, they claimed that they tried the friendly approach first, were

CDC warns of upcoming loss

Cyber 960 delay will contribute to disappointing fourth quarter

BY NELL MARGOLIS
CW STAFF

MINNEAPOLIS — After three profitable quarters, Control Data Corp. last week warned investors of an impending fourth-quarter loss that could knock the $3.4 billion computer company back to a bare break-even position for the year.
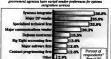
In a prepared statement, Control Data Chief Executive Officer Robert Price said that "the outlook for the year, particularly in the Computer Products division, has changed in the last few days." The altered outlook, according to the statement, includes start-up production delays in the company's Cyber 960

CDC's Robert Price

mainframe, a machine whose market entry has been handicapped by the scarcity of necessary logic chips.

Unexpectedly disappointing

performances on the parts of CDC's government-business division and chip-making subsidiary also contributed to the suddenly dimmed fourth-quarter forecast, the company said.

The announcement was discouraging to analysts who had taken cautious encouragement from what seemed to be a steady, if tenuous, comeback for CDC.

If it's not one thing . . .

"When you have a bunch of businesses, something always seems to be headed in the wrong direction," said Kurt Rivard, an analyst at Dain, Bosworth & Co., an investment firm based here. The fact that the company itself seemed taken by surprise, he said, "implies an abrupt problem in the 960 line. . . . To me, it's a red flag. The chip shortage for the 960, now this — it always seems to be one business or another."

An analyst who stopped following CDC last year was less gentle. "The company's in the living dead," he said. "Every year they say they're coming back, and every year they almost do, but never quite."

Fourth-quarter results, according to CDC's Price, have traditionally depended heavily on a very high volume of shipments. That dependency has been thrown out of balance this year by a compressed production and shipment schedule for the

At last: Daisy wins Cadnetix

BY NELL MARGOLIS
CW STAFF

MOUNTAIN VIEW, Calif. — A hostile takeover situation turned friendly — and close to final — last week as Daisy Systems Corp. and acquisition target Cadnetix Corp. reached an agreement in principle for the deal to be consummated for more than $200 million.

Daisy extended its latest $9.50-per-share offer through today to give the companies a chance to work out the details.

Just in case they do not, Bear, Stearns & Co. is committed in principle to supplying up to $130 million by way of a bridge loan that would let Daisy go through with the acquisition at an earlier offering price of $8.375 per share.

The $9.50-per-share offer now on the table consists of $6.50 in cash and the remaining $3.00 in the face amount of a new Daisy convertible debenture, according to a Daisy spokesman. That represents a $1.50-per-share increase over the original $8.00-per-share cash offer, which was subsequently upped to $8.375.

The differential is greater than the figure immediately implies, the spokesman continued, since Daisy made its original

Data View

Who does your integrating?

Information systems managers at Fortune 1,000 firms and government agencies have varied vendor preferences for gaining integration services

	Percent of respondents (Base of 102)
Systems integrator	38.8%
Major DP vendor	36.9%
Specialized technical firm	33.0%
Major communications vendor	26.2%
Defense contractor	15.5%
Big Eight accounting firm	13.6%
Management consultant	12.6%
Contract programming firm	12.6%
Other	2.9%

Multiple responses allowed

SOURCE: THE LEDGEWAY GROUP, INC.
CW CHART

Ungermann works against merger skeptics

BY PATRICIA KEEFE
CW STAFF

SANTA CLARA, Calif. — Feisty Ralph Ungermann concedes right up front that few mergers succeed. But the co-founder and president of Ungermann-Bass, Inc., now a subsidiary of Tandem Computers, Inc., is determined to prove the naysayers wrong.

In fact, Ungermann, who said recently that he plans to stay put, has set his sights on becoming a billion dollar division of Tandem by approximately 1994.

"Our plan is to grow the business annually in the 35% to 45% range over the next few years. Since we're coming off of a $200 million-plus base, a 35% growth rate should get us up there pretty fast."

Of course, much of this is contingent on a harmonious merger.

"It is widely believed by the press that mergers never work. That's not the case — they do work, but in small proportions," he said.

To the rescue

In February, Tandem became UB's white knight in the face of a threatened takeover by Digital Communications Associates, Inc. In return for its $260 million rescue effort, Tandem got to enhance its line of fault-tolerant computers with UB's general-purpose and wide-area networking products.

Ungermann is quick to dismiss any comparisons with the September 1987 nuptials of rival Bridge Communications, Inc. and 3Com Corp. That marriage resulted in the consolidation of two similar enterprises — as well as the departure of two key

Bridge executives.

But UB and Tandem are in fundamentally different businesses. Different enough to make a good fit, and smart enough to let well enough alone — to hear Ungermann tell it.

Despite the merger, UB's customer base remains about 50% manufacturing and 20% telecommunications, followed by a mix of aerospace, government system integrators and large universities. But it leads from Tandem are expected to broaden that base.

Missing link?

As with many computer suppliers, Tandem has come under increasing pressure to provide a complete technology package. In its case, the missing piece was enterprisewide connectivity. Enter Ungermann-Bass.

The merger is expected to reap a number of joint opportunities in 1989. "It's just beginning to happen that Tandem is sending [new] customers to us," Ungermann said. "We're becoming a player in new markets because of [that relationship] and that will speak for larger growth in 1989."

Financial services is one new market that has caught UB's eye. Ungermann noted that worldwide, most stock exchanges are putting in extensive enterprise networks. Many of these sites are Tandem installations.

Tandem's reliance on UB's communications skills will also work in favor of retaining the Ungermann-Bass logo. "The label clearly will be there," Ungermann said. "To lose that identity would be a disaster for us and for Tandem, and we [all] understand that . . . that would be a stupid thing to do."

Daisy

nal tender. Cadnetix itself has acquired two companies — HHB Systems, Inc. and Sunucad Corp. — increasing the number of Cadnetix shares outstanding from 13 million to 21.3 million.

Daisy's willingness to pay more for Cadnetix, according to Bear Stearns' Vice-Chairman Michael Tennenbaum, grew as its executives came to know Cadnetix Chief Executive Officer Bruce Holland and his management team. The merger agreement now taking shape, which foresees Cadnetix carrying on at its headquarters in Boulder, Colo., as a Daisy subsidiary, goes beyond a mere invitation to the

Holland cadre to remain in place, Tennenbaum said. "It is *conditioned* on their remaining. Call the $9.50 the price of executive happiness."

Product hungry?

Armed with a large installed base and a strong balance sheet but "with its product line in disarray — product-hungry, if you will," cash-rich Daisy has assiduously pursued Cadnetix for its product line since last spring, Herwick said. The company resisted all invitations to the bargaining table. "Finally, in frustration, Daisy said, 'If we can't get your attention any other way, how about a hostile bid?' " he added. Cadnetix' subsequent search for a white knight was in vain; to date, no company has come forward with a higher offer than

Daisy's, Bear Stearns' Tennenbaum said.

While he regards a Daisy-Cadnetix union as technologically synergistic, Herwick voiced reservations about the match from a corporate culture point of view. Of the two remains for Cadnetix' dogged resistance to Daisy, he said, only one has been countered by the latest offer.

"Cadnetix certainly didn't think $8.00 a share was a fair price for their company; they felt themselves much undervalued," he said. Last week's sweetener successfully addressed the question of value.

However, "they also didn't want to be any part of Daisy," he noted. Daisy, with its corporate roots in Intel Corp., "has a more confrontative, aggressive, remote culture. Cadnetix' style is more the sharing, sensitive approach."

IN BRIEF

Here we grow again

The trend of consolidation in the terminals business continued last week when privately held Massachusetts, Inc. in Billerica, Mass., acquired Tempe, Ariz.-based Alcatel Information Systems, Inc. for an undisclosed amount. The match combines Idensosciates' IBM System/36 and 38 and Application System/400 terminals and Personal Computer links with Alcatel's $250 million IBM mainframe terminals, controllers and printers business. Included in the purchase is Servcom Co., Alcatel's third-party maintenance organization.

Bringin' it all back home

NCR Corp. subsidiary Applied Digital Data Systems, Inc. went looking for a manufacturer for its newest VDTs and signed on with Carson City, Nev.-based electronics contract manufacturing services firm Omnishere. Expressing pleasure that "companies such as Omnishere are willing and able to compete against offshore manufacturers" in the VDT business, Applied Digital Data President David Lewis noted that the NCR subsidiary "was one of the last companies to go offshore for VDT manufacturing and is proud to be the first to come back."

Engagement announcement

Impending nuptials were announced last week for McLean, Va.-based computer reseller Entre Computer Centers, Inc. and Exton, Pa.-based Intelligent Electronics, Inc., parent company of Today's Computers Business Centers, a 6-year-old microcomputer distribution franchiser. Between Entre — which, under the merger agreement, will also become a wholly owned Intelligent Electronics subsidiary — and Today's Computers, the proposed union would give Intelligent Electronics the second largest computer franchise in North America: some 375 franchises, with end-user sales in the $1 billion ballpark.

Youngblood VP

Teradata Corp. has a new vice-president of product development: 25-year IBM veteran W. Donald Frasier. Frasier, who will oversee the Los Angeles-based database computer maker's hardware and software development activities, served at a panoply of IBM Big Blue development management posts. His most recent post was with the Rolm Systems division, at which he headed up development plan prioritization.

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Ashton-Tate income up 5.9%

TORRANCE, Calif. — Ashton-Tate Corp. last week reported third-quarter net income of $11.7 million, up 5.9% over the $11.1 million logged for last year's comparable period.

Third-quarter revenue of $75.7 million marked an 11.3% increase over sales of $68 million reported this time last year. Chief Executive Officer Ed Esber claimed the comparatively underwhelming quarterly performance as a victory for Ashton-Tate's recently shipped Dbase IV software product.

"We were pleased to ship Dbase IV in the third quarter," Esber said. "However, despite heroic efforts, we were unable to fill all orders on hand at quarter's end, because product certification so near the end of the quarter did not afford us adequate production time."

In addition to launching Dbase IV into the commercial stream, Ashton-Tate announced two complementary software packages during the quarter just closed; a native code compiler for Dbase application developers and a conversion utility that lets code written in other formats run on Dbase IV. Esber said Ashton-Tate is counting on the products to "draw software developers back to the Ashton-Tate fold, especially those who have opted to worked with Dbase clones in the past."

Wilder

rebuffed and concluded that their targets were worth the business and financial risks of going the tender route.

But Mr. Bennett LeBow is not interested in CAD/CAM market share, Medusa software, factory automation or any of the other highlights that computer analysts and MIS professionals think of when they think of Prime. No, Prime is just another Western Union or American Brands — companies that LeBow sized up as good targets based on price/earnings ratios, return on equity, potential breakup value and all the other data points on arbitrage spreadsheets around the world.

The documents may say MAI Basic Four, but this is a LeBow deal all the way, complete with a cool $875 million funding tap from none other than Drexel Burnham Lambert. MAI Basic Four's name didn't even make *The Wall Street Journal's* front-page summary of the takeover bid last Tuesday; the Journal said the bid came from a "LeBow-controlled computer maker."

Welcome to the big leagues.

Some analysts are speculating on an outcome of greenmail, whereby Prime will keep its independence by buying back the stake that LeBow will eventually amass, and LeBow will walk away a lot richer, and presumably happy.

If Prime Chief Executive Officer Anthony L. Craig wants some advice on what to do next, he won't find many who have lived through this experience among his counterparts at the likes of IBM, DEC or Data General. But he'll have plenty of empathizers at Gillette and Polaroid.

What will happen in the next few weeks? There will be a search for white knights, the bid price will be raised and extended, perhaps other big-time financial players will join the fray. Lawyers in a Delaware courtroom will rack up plenty of billable hours debating poison pills and golden parachutes. And Prime's top management will work 16 hours a day, not one of those hours devoted to thoughts of how to make a better minicomputer.

Several industry CEOs, prominently NCR's Charles Exley and CDC's Bill Norris, have spoken out strongly against the U.S. economy's takeover mania. It appears that most of their colleagues agree with them. If LeBow and MAI Basic Four actually succeed in winning Prime, the resulting shock waves will shake the confidence of even the most secure computer vendors. Indeed, after last week, those waves are already forming.

Wilder is Computerworld's *senior editor, computer industry.*

CDC

Cyber 960s caused by the chip shortage. "In this regard," Price said, "the bulk of the change [in fourth-quarter prospects] is due to timing, as opposed to lost business."

Even so, said Dain Bosworth's Rivard, the 11th-hour downward adjustment "has shaken their credibility; Control Data has continually disappointed the Street." So major a rollback in a year in which the company expected to take an earnings step forward, he said, has placed the company "very much in a 'show-me' position with most of the investors."

If the company cannot show the investors, Rivard noted, "some dramatic action is going to be called for: selling assets to raise capital, or perhaps selling off part of the company. They have to stop bleeding."

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COMPUTER CAREERS

Software developers take to PCs

Cooperative processing, speed and interface draw programmers to micros

BY SHERYL KAY
SPECIAL TO CW

For software
developers, the
days of "I'm a
mainframer
only" may be
disappearing.

Many corporations now owe
their personal computer's sheer
friendliness with the main-
frame's data storage capabilities,
creating the need for technical
professionals who are proficient
with both types of machines.

Burt Israel, manager of data
processing placement at recruit-
ment firm Robert Half Interna-
tional, Inc. in Hartford, Conn.,
says most companies look for PC
specialists possessing some
mainframe background coupled
with work experience using the
DOS operating system.

"You've got to find someone
out of the ordinary, not just
someone who uses a PC at
home," Israel says.

The nationwide salary range
for a PC programmer analyst
with three to five years of expe-
rience runs from $23,000 to
$38,000 per year, depending on
the nature of the job and the
technical skills required, accord-
ing to Israel.

Some companies demand that
a programmer have in-depth
knowledge of a specific software

package, such as Nantucket
Corp.'s Clipper, Lotus Develop-
ment Corp.'s 1-2-3 or Crosstalk
Communications Co.'s Cros-
stalk.

One PC technology, coopera-
tive processing, has become in-
creasingly popular, creating job
opportunities for professionals
straddling the PC and mainframe
worlds. Here, the programmer
uses the PC as a productivity tool
to define maps, tables, screens
and error messages at the PC
and then uploads the redefined
user interfaces to the main-
frame.

Cooperative processing

After spending six years devel-
oping standard Cobol business
applications on IBM main-
frames, Tony Prim, a senior pro-
grammer analyst at Compass
Computer Services, Inc. in Car-
rollton, Texas, delved into coop-
erative processing two years
ago.

"Once you see what coopera-
tive processing can do, you
would never take a job again with
standard processing," Prim
says.

In addition to increased pro-
ductivity, Prim enjoys the PC
world because it affords the abil-
ity to create very user-friendly
systems. "The users are always
impressed, and part of my job
satisfaction is seeing their reac-

tions," he says.

The personality of the PC
professional may differ from that
of the mainframe professional, according to Israel. "You
tend to see a person who gets a
great deal of satisfaction out of
having something done quickly,
as opposed to people who are not
frustrated by the very long de-

> **ONCE YOU see what cooperative
> processing can do, you would never take a
> job again with standard processing.**
>
> TONY PRIM
> COMPASS COMPUTER SERVICES

velopment cycles found in main-
frame shops," he says.

As the PC is designed for de-
veloping user-friendly systems,
the PC specialist tends to be
more oriented toward the user
interface and should possess su-
perior interpersonal skills.

Learning PC technology is no
great challenge for an individual
who already has a good systems
mind, says Jay Malik, president
of Impact Business Technol-
ogies, Inc., a group of business
software specialists in Tampa,
Fla. "You might have trouble
taking someone who is a great
database developer on the PC
and trying to teach him CICS,

but you could easily take a CICS
programmer and train him to be
a PC database specialist in no
time," he says.

Employees find that many of
the candidates they interview
have had enough exposure to
PCs at the workplace to get
them started at a new PC-orient-
ed job.

"I don't anticipate any major
problems in finding people to
staff the projects," says Doug
Brown, director of MIS at Com-
pass, who oversees Prim's coop-
erative processing group. Those

lacking a cooperative processing
background will be trained on
the job.

Mainframe-only technicians
do encounter some problems en-
tering the PC world. "Someone
who has been in an IBM main-
frame-only shop is used to a lot of
trappings and extraneous work
that need to be done in order to
function in that environment,"
says Joyce Collins, manager of
corporate systems development
at management consulting firm
Towers, Perrin, Forster & Cros-
by, Inc. in Atlanta.

"If that same person gets into
a PC environment, he keeps
thinking, 'There's got to be

more to this,' and he keeps mak-
ing more out of it than there real-
ly is."

Another transitional problem
is one of an abundance of options.
"In a mainframe-only environ-
ment, you are used to a much
more limited tool set," Collins
says, "whereas with PCs,
there's a whole world of tools out
there that you can choose from.
So sometimes, there's this utter
confusion for a mainframe-ori-
ented professional entering the
PC world."

PC polish

Nonetheless, the mainframe-
only professional should begin to
give serious thought to increas-
ing his skill set to include the PC,
Collins says.

Dennis Lockard, manager of
information resources at Corn-
ing/Asati Video Productions in
Corning, N.Y., predicts that
mainframe-only professionals
are going to be limited to back-
room positions.

"There are going to continue
to be programmers that we lock
in their rooms, and they will keep
the big systems up and running,
but the number of these posi-
tions is decreasing," Lockard
says.

The new MIS professional, he
says, is out in the business world
solving the clients' problems
with the most appropriate plat-
forms, including PCs.

*Kay is a Tampa, Fla.-based business
consultant and free-lance writer special-
izing in emerging technologies and bu-
man resources.*

CAREER INDEX

September 1988 computer recruitment advertising activity*

PERCENT OF SPACE PLACED BY VENDOR VS. USER COMPANIES

	National	Western region	Midwestern region	Eastern region
Vendor	42.68%	30.01%	67.43%	41.55%
User	57.32%	69.99%	32.57%	58.45%

□ Vendor   □ User

*Analysis of computer recruitment advertising space in Computerworld and selected major U.S. newspapers

SOURCE CW PUBLISHING, INC.'S RECRUITMENT MARKET RESEARCH DATA BASE

4381 market decline continues

OEM memory underpricing, customer migrations spur value decline

BY SUSAN GANNON
IDC FINANCIAL SERVICES CORP

Throughout 1988, values for IBM 4381s have dropped substantially. IDC Financial Services Corp. expects this trend to continue throughout 1989, as the announcement of the 4381 replacement product approaches.

Although decline of the 4381 was expected, there was an interesting development in the 4381 secondary market that accelerated the decline of the mainframe.

According to market sources, an OEM supplier of IBM-compatible memory has been offering 4381 customers memory for less than the market price for IBM memory. This factor hastened the decline of both the 4381 base and 4381-11, 12, 13 and 14 models. The scenario is painted as follows:

A 4381-P13 (16M bytes) customer decides to upgrade to an R13 with 32M bytes. The OEM supplier of 4381 memory provides the customer with 32M bytes of the compatible memory

but only charges the customer for the additional 16M bytes. The end of the transaction results in the OEM supplier dumping the original 16M bytes of IBM memory onto the secondary market for less than the current market value for the memory.

The dumping of memory is hurting the value of the 4381 base and 4381-11, 12, 13 and 14 models because as the machines get older, the memory begins to make up a larger percentage of the value. But as more memory gets dumped, its price falls, which in turn causes machine prices to drop. This is part of the reason why the values of the base and 4381-11, 12, 13 and 14 models are dropping so quickly.

Supply increasing

During the months of September and October, 4381-11, 12, 13 and 14 values experienced rapid declines as the supply increased. The reason for the increased supply stems from the many options available to a 4381-11, 12, 13 or 14 customer, such as swapping a 4381 or a 3090 or a

3090 or a 3080 and dumping a 4381-11, 12, 13 or 14 to purchase a 4381-21, 22, 23 or 24.

Most 4381-11, 12, 13 and 14 users chose one of the above alternatives. Now the market is reacting to these decisions. The quest for more powerful machines appears to be one of the most popular options. The secondary market appears to have been the benefactor in this acquisition strategy. IDC Financial Services believes that half of the approximately 200 to 300 4381 customers who migrated to a

Trades of 4381-21, 22, 23 and 24 models are currently sporty. Most secondary market dealers report that both demand and supply of 4381-21, 22, 23 and 24 models are weak. As a result, values for these machines continue to fall. Part of the reason for the dropping 21, 22, 23 and 24 values is because the upgrade relationship between the 4381-11, 12, 13 and 14 models determines their market value. Therefore, as the 4381-11, 12, 13 and 14 models continue to decline, the values for the Models 21, 22, 23 and 24 are being pulled downward as well.

IDC Financial Services has learned of an unannounced market program to help current 4381 sales. This program is called the Enterprise System Growth Option and is described as a market basket of options for a prospective 4381 customer. It involves a special bid situation on quantities of one and does not apply to all 4381 customers.

IBM security blanket

On Sept. 13, IBM announced a 4381 Technology Exchange Offering for 4381 customers. It allows customers using a new 4381 processor under an IBM Credit Corp. lease to exchange the system for a different machine type of equivalent or greater performance as defined by IBM.

This program enables 4381 customers in need of greater performance to migrate to a new processor without defaulting on the terms of the original lease. Its purpose is to give customers currently evaluating a 4381 processor a sense of security regarding current and future IBM processors. This offering also alleviates fear of being left behind when new technology becomes available.

For more information, contact IDC Financial Services' Terri LeBlanc at 508-872-8200.

IBM 4381
Current fair market value

	MIPS	List price	Retail percent of list price	Retail value of list price
4381-M1	2.1	$373,131	8%	$29,850
4381-M11	1.5	$207,481	14%	$29,047
4381-P13	3.7	$447,731	32%	$143,274
4381-P14	6.2	$682,731	37%	$252,610
4381-P23	4.7	$558,231	52%	$290,800

SOURCE: IDC FINANCIAL SERVICES CORP
CW CHART

The BoCoEx index on used computers
Closing prices report for the week ending Nov. 11, 1988

	Closing price	Recent high	Recent low
IBM PC Model 076	$750	$900	$400
XT Model 086	$1,100	$1,250	$900
XT Model 089	$1,325	$1,575	$1,068
AT Model 099	$2,050	$2,400	$1,700
AT Model 239	$2,375	$3,400	$1,800
AT Model 339	$2,575	$3,600	$2,425
PS/2 Model 50	$2,600	$1,700	$1,300
PS/2 Model 60	$2,350	$2,600	$1,300
Compaq Portable I	$775	$975	$450
Portable II	$2,300	$2,600	$1,650
Portable III	$2,900	$3,650	$2,500
Portable 286	$2,300	$3,250	$1,800
Plus	$1,100	$1,250	$800
Deskpro 20-MHz	$1,100	$1,500	$900
Deskpro 286	$2,600	$3,150	$1,800
Deskpro 386	$4,400	$5,100	$4,100
Apple Macintosh 512	$625	$950	$500
512E	$800	$1,025	$600
Plus	$1,125	$1,325	$950
Plus 20-MHz	$1,475	$1,650	$1,300
SE	$1,900	$1,950	$1,700
SE 20-MHz	$2,450	$2,875	$2,100
II	$5,225	$6,250	$4,550
Apple LaserWriter Plus	$2,700	$3,000	$2,350
NEC Multispeed	$850	$900	$625

INFORMATION PROVIDED BY THE BOSTON COMPUTER EXCHANGE CORP

Used Equipment

TRAINING

Focusing on business education

Just what is it that MIS professionals need to know about their business?

BY STEWART L. STOKES JR.
SPECIAL TO CW

That information systems professionals need to know more about the businesses they support, acquire a stronger business orientation and approach business problems wearing a manager's hat are no longer debatable issues.

This change in thinking requires a shift in emphasis from a production or product orientation to a marketing and sales orientation. This means that MIS professionals must learn what it means to be market-focused and customer-driven.

Along with learning about marketing, market segmentation and target market planning, systems professionals also need to learn some very specific things about their businesses, according to some 250 senior systems managers and human resources professionals I surveyed this past summer.

My first question asked respondents to indicate the extent to which they agree or disagree with the following statement:

"Information systems professionals need to become more business-oriented and learn more about their company, its business, industry, products, customers and competitors."

On a scale of one (disagree) to 10 (agree), the average response was 8.7. While this result was not surprising, some other responses were.

For instance, when I listed 10 topics that systems managers tell me they want their people to learn more about and asked the respondents to rank these topics in order of importance.

Here is their ranking. How does it compare with yours?

• 1 (tie). Emerging trends in the industry.
• 1 (tie). Corporate power structure and politics.
• 3. How information systems support functional areas, products and customers.
• 4. Information about competitors and their products and strategies.
• 5. Key people and departments as well as formal and informal networks ("This is how things really work around here").

• 6. Corporate strengths, weaknesses, problems and opportunities.
• 7 (tie). Organizational information, including size, organizational structure, products, markets, customers and distribution channels.
• 7 (tie). Department information such as product design and engineering, manufacturing procedures, marketing and sales strategies, distribution and product support, financial planning and budgeting, general business planning and competitive positioning.
• 9. Corporate culture and style.
• 10. Business vision, mission, objectives and corporate strategies.

The surprises? First, that corporate power structures and politics ranked so high. Second, that business vision, mission, objectives and corporate strategies ranked so low, in 10th place. Third, that corporate culture and style ranked nearly as low, in eighth place.

It is not really so surprising that "power and politics" ranked so high. After all, these intangibles grease the skids for information systems.

A LONG WITH learning about marketing, market segmentation and target market planning, systems professionals also need to learn some very specific things about their businesses.

But "business vision and corporate strategies" in last place? And "corporate culture and style" next to last? If these responses are truly reflective of the way systems managers feel, then it is little wonder that they encounter culture and conflict clashes with their customers.

My second question asked for the most important thing the managers' MIS professionals need to know about their business, products and customers.

Examples of the varied re-

sponses include the strategy of "distinctive competence"; why projects make good business sense; what is needed to be more competitive; and the company's products and how they are better than those of its competitors.

Other responses were plans for strategic business areas; how business units interrelate; where the business is going and how systems can be leveraged; how to speak the language; and management objectives and how they are prioritized.

Finally, two comments seem to summarize what MIS professionals need to know:

• "MIS professionals must understand that the application of MIS technology must be directed at the satisfaction of a business objective. It is not an end in itself."

• "We often think of our programs and systems as the end results. We fail to see our role in the organization and how our efforts affect the bottom line."

These remarks suggest why senior MIS executives are increasingly coming from line business functions. They are things to think about as we plan our training and education programs and budgets.

Stokes is a vice-president of QED Information Sciences, Inc. in Wellesley, Mass.

ADVERTISERS INDEX

STOCK TRADING INDEX

S&P 500 stock index

CW stock index

6/1   11/16

Indexes	Last Week	This Week
Communications	97.7	95.4
Computer Systems	91.4	88.1
Software & DP Services	100.0	96.9
Semiconductors	55.9	51.6
Peripherals & Subsystems	77.7	75.0
Leasing Companies	111.4	105.9
Composite Index	82.8	79.3
S&P 500 Index	114.9	110.9

Communications

Computer Systems

Software and DP Services

Semiconductors

Peripherals and Subsystems

Leasing Companies

CW CHARTS   6/1   11/16

Computerworld Stock Trading Summary

CLOSING PRICES WEDNESDAY, NOV. 16, 1988

Communications and Network Services

Semiconductors

Peripherals

Computer Systems

Leasing Companies

Software & DP Services

Bushed

Market drags its heels despite hopes for a fresh postelection start

The market continued its sorry state last week, rebounding slightly from the previous Friday's 47.66 Dow Jones industrial average slide and waning toward Friday's close without hope for boosts from presidents named George. George Washington seemed stuck in a no-win situation: The dollar's drop caused an overall stock decline, while a late-week resurgence of strength for the dollar caused — an overall stock decline. George Bush proved to be a similar monetarist in spurring faith in stocks, as the market came back that his White House win was supposed to spur remained absent.

IBM closed Thursday at 115¼, down 1¾ points. Digital Equipment Corp. closed up ⅛ of a point at 89⅞.

Takeover stocks took a beating last week as the latest rumors of developments in the ongoing investigation of leveraged buyout facilitator Drexel Burnham Lambert, Inc. hit the street. Prime Computer, Inc., whose stock appeared poised for takeoff on Tuesday with MAI Basic Four, Inc.'s $20-per-share unsolicited bid, closed Thursday at 16¼, up ¾ of a point. Would-be buyer MAI dropped 1½ points to 11¼.

NELL MARGOLIS

Firms unite to simplify Unix

Hewlett-Packard and Microsoft submit graphical user interface to OSF

BY JULIE PITTA
CW STAFF

LAS VEGAS — Hewlett-Packard Co. and Microsoft Corp. last week joined forces in the industrywide effort to simplify the Unix operating system, offering yet another graphical user interface for Unix.

Called Common X Interface (CXI), the interface is the result of a joint development effort between the two companies. CXI will look like Microsoft and IBM's Presentation Manager, a graphical user interface included in Microsoft and IBM's OS/2, the operating system used in IBM's new personal computers.

The new interface is based on the X Window System. HP and Microsoft have submitted CXI for consideration by the Open Software Foundation (OSF), a

not-for-profit company formed to create a new version of Unix. The company is led by executives from HP, IBM, and Digital Equipment Corp.

Potential standard

Paul Maritz, general manager of Microsoft's networking and Unix business unit, said HP and Microsoft are offering CXI as a potential standard in the Unix arena. Standards will be key to the widespread acceptance of the Unix operating system, Maritz added.

HP officials said they will abide by the OSF's decision on a graphical user interface, but declined to say whether they will continue to push CXI should it not be selected by the OSF.

HP will offer its own three-dimensional version of CXI later this year. HP said it intends to license the technology to any interested vendors.

A CXI style guide for software developers and an HP X Widgets programming interface specification and hardware are

immediately available. A Window Manager will reportedly become available in the second quarter of 1989.

Additionally, Microsoft and HP will jointly develop Presentation Manager/X, a single-user version for workstation users. Availability and pricing of Presentation Manager/X tool kits will reportedly be announced sometime during the first half of next year.

Software in spotlight

BY J. A. SAVAGE
CW STAFF

LAS VEGAS — Bringing the Unix and Microsoft Corp. MS-DOS markets together, two companies at Comdex/Fall '88 announced software products with the ability to run the two operating systems simultaneously on a workstation-level computer.

Hewlett-Packard Co. brought out SoftPC, a software product that the company refers to as synthetic hardware. SoftPC, which runs on the HP 9000 workstation, is a product of Insignia Solutions, Inc. in Sunnyvale, Calif. The product supports UX, HP's version of Unix.

Motorola, Inc. also announced it will support SoftPC with a product available on its

System 8000 computers in the first quarter of 1989. The firm also reported a development agreement with Hunter Systems, Inc. in Mountain View, Calif., to support Hunter's XDOS software, which converts DOS applications to Unix. Motorola will handle the XDOS complier with Unix.

HP joins Apple Computer, Inc., Silicon Graphics, Inc. and Tektronix, Inc. in SoftPC support. Instead of the more expensive hardware-card addition, SoftPC emulates a hardware assist, an HP spokesman said. Instead of having space on the hard disk dedicated to DOS, the software sets it up with a file in the native file system.

HP's SoftPC implementation uses X Window System Version 11 to view both operating systems at once.

The form factor for HP's SoftPC implementation is limited to 5¼-in. floppy disks, but the HP spokesman said that a 3½-in. disk will be available next summer.

Tandy nets Panasonic deal

FORT WORTH, Texas — Tandy Corp. last week said it has reached an agreement to supply the Office Automation Division of Panasonic Industrial Co. with personal computers to be sold under the Panasonic label.

The value of Panasonic remains undisclosed. Ed Juge, director of product development at Tandy, said Tandy will supply IBM Personal Computer compatibles with the industry-standard bus.

Panasonic last week at Comdex/Fall '88 introduced a line of PC systems that it said are a direct result of the agreement with Tandy. The firm introduced three Intel Corp. 8086-based

models with suggested list prices from $999 to $1,499, three Intel 80286 models from $1,299 to $1,799 and two Intel 80386 models from $4,199 to $5,299.

Twice as nice

The agreement with Panasonic represents the second significant OEM contract Tandy has landed in recent weeks. Last month, Digital Equipment Corp. said it will resell Tandy PCs to end users.

Juge said that the agreement also calls for Tandy to sell PC compatibles based on the industry-standard bus to DEC. However, DEC has the option to resell future Tandy products.

Sliced cable

FROM PAGE 1

Leased fines, on the other hand, are point-to-point connections that cannot be routed off the cable, Dobrosz said. "Those customers need to be physically reconnected." AT&T has built redundancy into its network — but the redundant channels are also on that severed fiberoptic cable, Dobrosz said.

At American Airlines, David Kelly, regional manager in Hartford, Conn., said, "We've had an impact, some of it resolved, some of it not," and declined further comment. American Airlines public affairs officer Jim Brown, in Tulsa, Okla., at first said the company experience

minimal problems, then claimed no impact whatsoever, although the firm had trouble reaching its insurance carrier, Prudential.

At Prudential, spokesman John Godberg said the company experienced some difficulties with both voice and data communications but had successfully fallen back to a major rerouting plan utilizing alternatives such as microwave transmission.

At Macy's in Newark, N.J., a representative said "a lot of our systems" were hit and then was told not to comment further.

A Federal Aviation Administration said that despite some reports that FAA lines were affected, to his knowledge no impact had been felt.

At Chemical Bank, "We lost three [leased] 56K bit/sec. lines,

one [leased] T1 line and two switched 56K bit/sec. lines," said Donie Darrous, a manager of network control. As a result, the bank lost its connection with Texas Commerce Bank, which is in the process of merging with Chemical. However, no crucial data was lost, Darrous said, since the breakage took place after the major transactions for the day were transmitted.

In contrast, American Express Travel Related Services was virtually unaffected because of the "redundant routing and backup systems built into our network," according to company spokesman Robert Golden. "When the fiber circuits went down, our backup circuits took over; we're pleased they worked as they were supposed to."

Apollo finally opens doors to net standards

BY ELISABETH HORWITT
CW STAFF

CHELMSFORD, Mass. — Hoping to shuck its long-standing reputation as a closed, proprietary organization, Apollo Computer, Inc. last week hitched itself up to a slew of networking standards as well as to OEM and Digital Equipment Corp.'s proprietary communications systems.

However, the engineering workstation vendor may have made its move too late to win back market share from archrival Sun Microsystems, Inc., according to Bruce Richardson, senior analyst at Advanced Manufacturing Research Co. in

Cambridge, Mass.

By allowing Sun to appropriate the openness label, Apollo has put itself on the defensive, Richardson said. "Now they are playing catch-up."

Open-and-shut case

"The perception is that some of our major competitors are open and we're closed — it's a tough label to shake," Apollo spokesman Keith Lefebvre conceded.

"Yet, within the area of networking, there is nothing Sun supports that we don't" in terms of industry standards.

Apollo initiated its new era of openness with the following announcements:
● Support for IBM's 4M bit/sec.

Token-Ring local-area network. Support for IBM's 16M bit/sec. Token-Ring — also announced last week — is planned for late next year, when the product becomes commercially available, Apollo said.
● Apollo X.400, a gateway that permits users of Apollo's electronic mail system to communicate with systems that comply with the X.400 electronic mail standard.

The gateway is priced at $3,500, plus $295 per user. It will reportedly be available in April. A future release, slated for the second half of next year, will "have Apollo systems talking X.400 directly," Lefebvre said.

The gateway is the first of several planned product releases that will support the Open Systems Interconnect (OSI) standard, Lefebvre said. Products supporting FTAM as well as OSI transport protocols are slated for release in the second half of

1989, Apollo said.
● Availability of Apollo/Technet, a product announced last January that allows Apollo workstations to communicate with DEC VAXs over Decnet.

Priced at $1,995, the product will reportedly be available next month.

Sporting support

Standards support is the most likely way a company like Apollo could get in the door at Pratt & Whitney Canada, Inc., according to Ulf Anderson, the company's director of information systems. Pratt & Whitney currently does most of its computer buying from a limited number of vendors, he added.

"But that doesn't mean we have shut them out."

The aerospace manufacturer, which is currently in the midst of a major computer-integrated manufacturing project, requires

that all of its vendors support the company's existing database and communications architectures — which emphatically include DEC and IBM, Anderson said.

Pratt & Whitney will be able to diversify more when standards such as OSI firm up.

However, Anderson added, "Right now, OSI is not something I can get my hands around."

In another move toward openness, Apollo is working with Motorola, Inc. subsidiary Codex Corp. on an Integrated Services Digital Network (ISDN) bridge that would provide switched connections between multiple LANs, "as opposed to a dedicated [T1] link that just connects two LANs," Lefebvre said.

"Expect the [ISDN] product to come out with our new operating system," Apollo is currently migrating to Unix from its proprietary operating system Aegis, he added.

Lowe: No change in utility fee

BY WILLIAM BRANDEL
CW STAFF

There have not been, and will not be, any changes made in IBM's utility patent license fee, according to William Lowe, president of IBM's low-end systems.

"Why would we do that?" Lowe asked last week in response to persistent industry rumors that indicated IBM would drop or place a moratorium on the utility patent licenses to generate momentum for its Micro Channel Architecture (MCA). "If we did that, everybody would be in their garage making products out of what I invested millions of product development dollars in. I'd be out of business."

Lowe contends that IBM has not wavered in its posture on patent utility licensing. He said that a Category 1 license would call for a 2% patent fee, while Category 2 would add 3% to the charge. He said thus far, no company has been charged more than a 2% rate.

Lowe said the Extended Industry Standard Architecture (EISA) formation confirmed what he had been saying for 19 months: that there is a need for a 32-bit bus architecture.

EISA members "said for a year, 'we don't need that,'" Lowe said. "Now they have to find a way to say 'we'll need that.' We could have built an EISA bus, but decided to go with the MCA."

But Lowe acknowledged that it might be a healthier MCA market if IBM-compatible vendors were to compete against IBM for market share.

"Of course I'd like to have all the MCA business," Lowe said. However, "on occasion, some of our large distributors have said that they would be more comfortable with multiple suppliers."

Lowe said he is pleased with the MCA's acceptance and that IBM is now trying to bring Intel Corp. 80386 MCA-based Personal System/2s down to the bit 80286 price point.

EISA stands fast against MCA

BY JULIE PITTA

LAS VEGAS — At last week's Comdex/Fall '88, there is tough talk coming from the consortium behind the Extended Industry Standard Architecture (EISA) despite IBM's increased efforts to propel its proprietary Micro Channel Architecture (MCA).

Nearly 19 months after the introduction of its Personal System/2s, IBM last week demonstrated the purported advantages of the MCA with the introduction of the bus-master, an enhancement that removes some of the processing functions from the main CPU to improve overall system performance (see story page 1).

EISA members stuck to their guns last week. Gary Stimac, vice-president of research and development at Compaq Computer Corp., reasserted that 8-, 16-, and 32-bit boards will be able to be plugged into the motherboard so that existing add-in boards can be used in EISA systems.

Wyse Technology, Inc. actually plans to introduce a PS/2-compatible system at Comdex.

Wyse President Phil White said the company has not stopped the project but has no plans to introduce an MCA-based system.

White, a former IBM marketing executive, was skeptical about rumored changes in IBM's licensing requirements for MCA technology. "I think that's all smoke," he said. "I don't think IBM is going to drop its licensing fees. If it did, it would set a precedent that would make it difficult to hold any of their other 9,000 patents."

Wyse is currently negotiating with IBM for a cross-licensing arrangement, White said IBM may be interested in some of Wyse's VDT technology.

"EISA will go on no matter what," he added. "The bigger question is whether board makers will support EISA."

Stand-up guys

Other EISA members also expressed unwavering support for the consortium. "We stand as a group," said AST Research, Inc. President Safi Qureshey. But various members disagreed on one point: How the consortium was formed. "We made the first call 12 months before the EISA press conference," Zenith Data

Systems, Inc. President John Frank claimed. "Tandy has been part of the discussions for two years," said Ed Juge, director of market development at Tandy Corp.

However, Compaq is doing much of the design work, which it has offered for review to other members of the "Gang of Nine."

There appears to be one crack in the group's show of unity. Paul Ottellini, general manager of Intel Corp.'s PC division, said his firm's support of EISA has been "overstated" by Compaq. "It doesn't help our relationship with our largest customer," Ottellini said, referring to IBM; he pointed out that Intel is not an EISA member.

Alan Hald, president of Microage, Inc., said his company has no interest in reselling PS/2-compatible systems. Hald said there will be a market for IBM's PS/2 and EISA systems. "I have not seen a consensus yet," he maintained. "The idea of EISA sells well, especially for clients concerned with continuity, but it's not deliverable. I can't sell futures."

Senior writer William Brandel contributed to this report.

MCA bus

MIS executives at Becton, Dickinson & Co. in Franklin Lakes, N.J. Peloquin used bus-mastering will allow his company to perform financial consolidation on personal computers instead of mainframes without bogging down the processor.

Peloquin said he is not interested in products that the Extended Industry Standard Architecture (EISA) consortium has promised to deliver: "We're comfortable with our MCA decision and our relationship with IBM. I'm not interested in what Nos. 2 through 25 are doing."

Although bus-mastering represents the maturity of the MCA, Clare Fleig, director of research at the International

Technology Group in Los Altos, Calif., said users should not write EISA off just yet. EISA may serve MIS sites looking for short-term IBM Personal Computer bus upgrade solutions. However, she added, "They'll be constricting themselves to the same 16-bit architecture. The 32-bit architecture is the future."

IBM demonstrated bus-mastering capabilities present and future at Comdex, including a graphics imaging bus-master adapter card, a Token-Ring adaptep and a 32-bit small computer systems interface (SCSI). The SCSI bus-mastering products will be available during the first half of next year, IBM said.

IBM also demonstrated bus-mastering products that will allow the MCA-based members of its PS/2 series to be upgraded for dramatically different applications. The company announced the 6-1152 reduced instruction set computing (RISC) bus-mastering processors, which turn the

PS/2 Model 80 into a scientific workstation.

More than four of the 4 million instructions per second (MIPS) RISC processors can be installed in the PS/2 models, which are generally rated at about 3 MIPS. IBM said the product will be released in the first quarter of 1989.

IBM also showed its 7437/40 bus-master card. When used with the PS/2 5080 adapter card, it upgrades a PS/2 Model 60, 70 or 80 to a 370 that can run the VM/SP Release 5 operating system. IBM was holding the product to its largest customers at Comdex to gauge market demand. Its base price will be $18,100, and a PS/2 5080 adapter card costing $1,300 is also required.

IBM also demonstrated the Micro Master 386, a bus-master from AOX, Inc. in Waltham, Mass. The card boosts the performance of an Intel Corp. 80286-based Model 50 to that of an Intel 80386-based machine. IBM said it will be available late in the first quarter of 1989. Currently, the Model 50 uses a 286, while the Models 60, 70 and 80 use the 386. IBM indicated that the product will be out in the first quarter of 1989. The Micro Master will cost $1,895.

What they *meant* to say

Charging that the MCA has arrived, company officials and IBM is now emerging from a harrowing experience that it brought on itself by not exploiting its Micro Channel strategy.

"Traumatic is a strong word, but it took a great deal of effort [to overcome industry criticism]," said Chet Heath, senior engineer of IBM's PS/2 hardware architecture. "When we introduced 193 products in one day, we created a future shock. It has taken 18 months to get people to understand what we were doing."

In addition to giving the public more than it could swallow, IBM officials acknowledged, they compounded industry confusion by naming the product PS/2, which has created an association with the OS/2. IBM was equally baffled to technologists during the 193-product barrage. "Maybe we should have called it OS/2 DOS V instead," said Robert Carberry, vice-president of low-end systems. "Everyone thought, 'PS/2 means OS/2.' It was a message we should have clarified. We should have clarified that DOS runs just fine on the PS/2."

WILLIAM BRANDEL

TRENDS

Optical disk storage

PCs to stack up heftiest chunk of the market for optical drives

U.S. UNIT SHIPMENTS TO END USERS (IN THOUSANDS)

- Mainframe
- Mini
- Micro
- PC

*Projected

Personal computer users
will become the biggest
purchasers of optical
disk storage going into
the early 1990s while
mainframe sites will continue to
resist the technology, according
to CAP International, Inc.

"It'll be quite a while before
there's any real penetration in
mainframe sites," said Scott
McCready, associate director of
CAP. "The access time and
transfer rates just aren't yet ac-
ceptable."

For example, an average rate
to a mainframe direct-access
storage device (DASD) is 3M
bytes/sec., McCready said. But
the expected transfer rates for
the emerging erasable optical
disk systems will be 1M byte/
sec., he said.

Although mainframe sites will
not embrace optical disk technol-
ogy warmly, the overall market
will show a steady growth
through 1992. At that time, the
total number of optical disk
drives shipped will hit 400,000.
Mainframe installations will
grow at a small rate, from 500
this year to 2,900 in 1992.
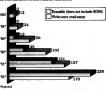
By 1992, which will strongly
show a preference for erasable
disk technology. Erasable optical
disk drives are expected to hit
the market next year. Currently,
write-once read-many (WORM)
optical disk drives dominate.

WORM drive revenues, how-
ever, will continue to outpace
erasable drive revenues because
the bulk of erasable units
shipped through 1992 will be
lower-capacity, lower-cost ver-
sions to PC installations, CAP
added.
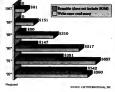
ROSEMARY HAMILTON

Erasable drives become fast favorites

U.S. UNIT SHIPMENTS TO END USERS (IN THOUSANDS)

- Erasable (does not include ROM)
- Write-once read-many

*Projected

...but don't rake in biggest bucks

VALUE OF U.S. SHIPMENTS TO END USERS (IN MILLIONS)

- Erasable (does not include ROM)
- Write-once read-many

*Projected

SOURCE: CAP INTERNATIONAL, INC.